DECEMBER
1961
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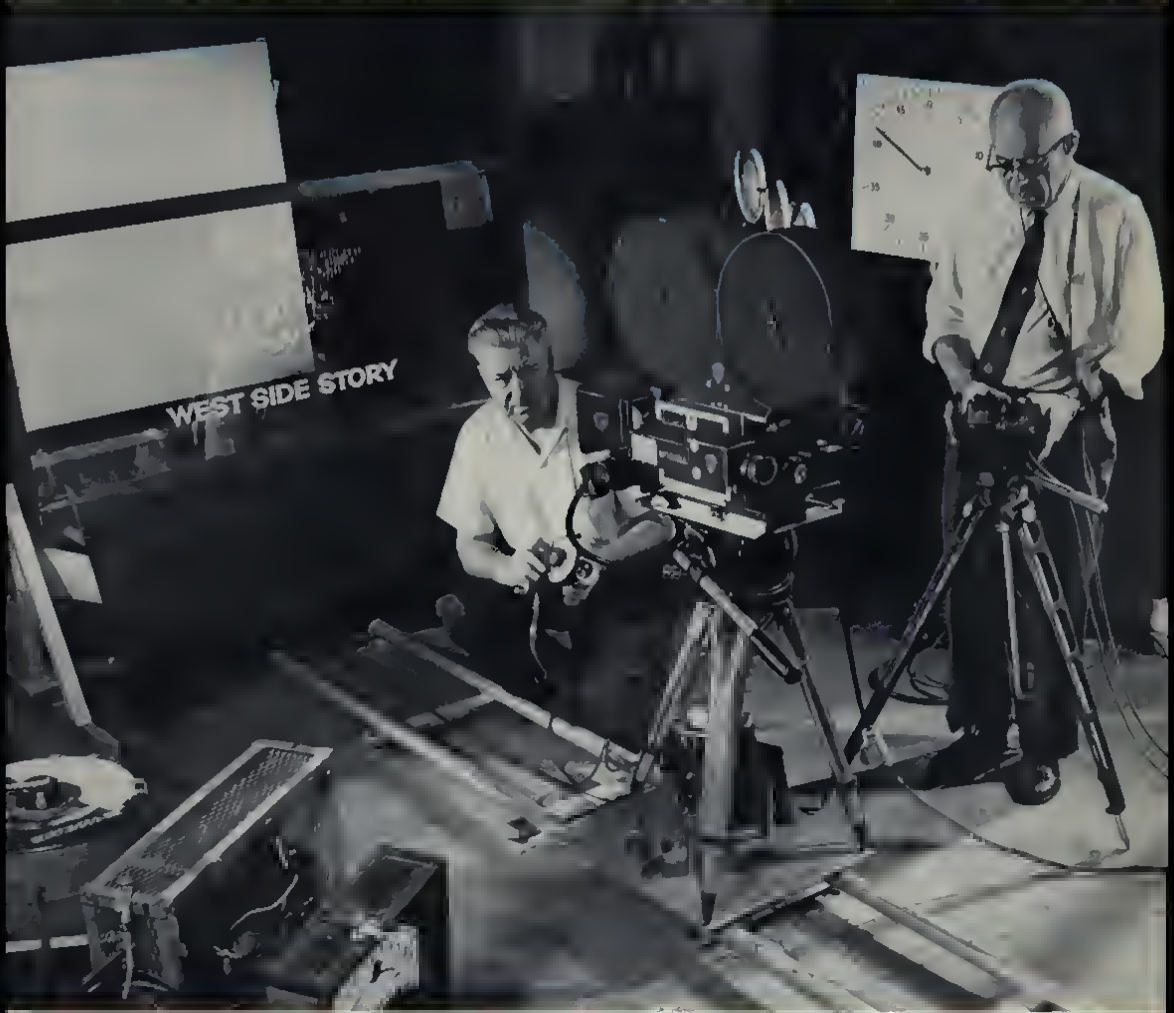
AMERICAN Cinematographer

The Magazine of Motion Picture Photography



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•THE PHOTOGRAPHY OF "WEST SIDE STORY"
•EFFECTS AND TITLES FOR "WEST SIDE STORY"
•MAGIC WITHOUT MATTES
•CHOOSING A 16MM FILM

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Cinematographer

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ON THE COVER

LINWOOD DUNN, ASC, (left) and Cecil Love prepare to shoot main title for Mirisch Pictures "West Side Story" Dunn is checking remote focus-control of the 65mm camera, while Love sets up apparatus for controlling camera dolly movement during shot Faders used in effecting light changes on title background are at lower left During shooting, light changes and camera dolly movement were precisely timed by means of sweep-hand clock in right background Dunn's story about filming titles and effects for "West Side Story" begins on page 736 of this issue

AMERICAN CINEMATOGRAPHER, established 1920, is published monthly by the A S C Agency, Inc 1782 N Orange Dr., Hollywood 28, Calif SUBSCRIPTION: United States and Canada $4 00 per year Foreign, including Pan American Union $5 00 per year Single copies 35 cents back numbers 45 cents foreign single copies 45 cents back numbers 55 cents Advertising rates on application Copyright 1961 by A S C. Agency, Inc. Second-class postage paid at Los Angeles California

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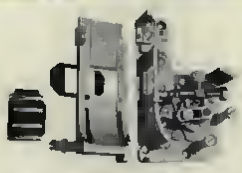

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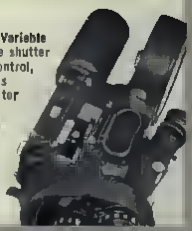

Motor Interchangeability 115 220V synchroneus, high speed, stop-motion, 12V-110V variable speed motors available

Viewfinders: Parallax-free brilliant reflex viewing of more than full aperture field Critical focus magnifier, contrast viewing filters built in Studio finder tits R-35

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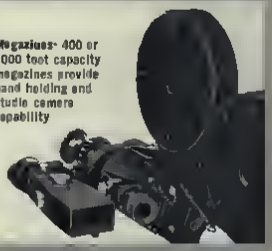

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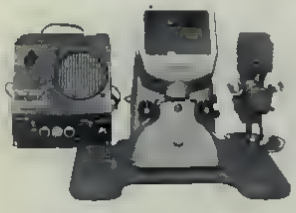

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INDUSTRY NEWS

News briefs of industry activities, products and progress

Hot Subject

Interest in 8mm sound films continues to increase. The principal attraction is lower cost compared to 16mm. It is mass production of 8mm SOF *prints* the industry's most interested in at present.

There is general agreement that the best quality 8mm color print is the one made by reduction, and that the step printer provides the best reduction prints, according to General Film Laboratories' engineers.

Since step-printing is inherently a slow process, ways need to be found to multiply the number of prints that can be made at one time—such as the 35/32mm method. The motion picture laboratories today are only in the beginning stages of engineering and using 8mm printing and tracking equipment, General concludes.

•

New Disney Cartoon Process

A process combining automation with animation has been developed by Walt Disney Studios, which transposes individual drawings of animators photographically to the cels, eliminating need for inkers to trace drawings onto cels which are subsequently filled in by painters. Its use reportedly has trimmed production costs on studio's current cartoon feature, "The Sword and the Stone."

•

20th-Fox Renews Contracts

Two ASC members, both veterans of 20th Century Fox's Beverly Hills studios, have had their contracts renewed for another year. They are Director of Photography William Mellor and L. B. Abbott, head of the studio's photographic effects department. Mellor is currently shooting the Jerry Wald production, "Mr. Hobbs Takes a Vacation," starring James Stewart and Maureen O'Hara.

Cortez To Lecture Collegians

Stanley Cortez, ASC, last month, was invited to lecture before University of California's cinema department student assembly on subject of contemporary cinematography. Cortez, who directed the photography of "The Magnificent Ambersons," "Night of the Hunter," and "Back Street," was selected because of his work on these productions.

•

Hollywood Booming

Employment in the Hollywood motion picture studios continues to increase despite so-called "runaway" production and economy cuts by the studios.

According to *Daily Variety*, Hollywood tradepaper, which rendered a lengthy report on this subject in its November 28th issue, the production of television films is largely responsible for the continued high-level of employment in the studios. The report indicated a recent analysis revealed some studios have one feature picture in production to eight TV films; others two or three features to five-to-eight video films.

•

New English 3-D Camera

National Research Development Corporation, of London, and W. Vinten, Ltd., have introduced a new motion picture camera for 3-D motion picture photography. The specially constructed stereo camera was used recently at Toronto International Studios to photograph dream sequences for its production, "The Mask."

According to *Film & Television Technician*, English film industry journal, this shooting is probably the first 3-D photography on a feature film to be carried out anywhere in the world for six or seven years.

Continued on Page 706

"WEST SIDE STORY... PHOTOGRAPHIC EFFECTS BY LINWOOD DUNN AND FILM EFFECTS OF HOLLYWOOD HAVE REALIZED TRICKY AND IMPORTANT INNOVATIONS."

Hollywood Reporter • Sept. 22-1961

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"Tha scena shimmers with pastel light, than blurs as Tony catchas his first glimpse of Maria..."

N.Y. TIMES
"Innocent first-sight lovers are isolated in goldan mist at a teenage dance"

L.A. TIMES
"Director Robert Wise's color camera, misting out all tha othar dancers, mada this an enchantad moment indaad"

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INDUSTRY NEWS

Continued from Page 704

The fundamental advance of the new camera, according to *F&TT*, derives from its being designed at the start for three-dimensional photography, with the twin cameras (producing twin negatives) integrally mounted in a single body. The intermittents are of standard Vinten design—same as used in the standard Vinten-Everest camera, but the twin mechanisms are mounted on a machined guide so they can be moved freely from side to side, while the camera is running if necessary. This gives effective lens separations variable from 5-inches down to zero.

A semi-reflector, used as a beam-splitter, is mounted in front of the lenses, one of which shoots straight through, and the other pointed directly downward into the beam splitter from above.

Convergence of the two cameras is effected by means of off-setting the film center lines outwards in relation to the lens axis. Mirror shutters provide through-the-lens viewing, and either finder may be used by the operator during the course of filming a scene.

•

Top U.S. Non-theatrical Films To Be Honored

Fifty-three 1961 U.S. non-theatrical films which gained special recognition at three foreign film festivals held in Edinburgh, Venice, and Padua, Italy, will be honored by certificates from Embassy officials of Italy and Britain at a showing of "Films of Merit" at 7:45 p.m. in the National Educational Assn auditorium in Washington, D.C., December 12.

•

Academy Names Three ASC Members to Awards Committee

ASC-members Farciot Edouart, Sol Halprin, and Hal Mohr were among those appointed on a committee last month by the Academy of Motion Picture Arts and Sciences, Hollywood, to evaluate the past year's scientific and technical achievements. The committee will make recommendations for appropriate awards to the Academy's Board of Governors. ■

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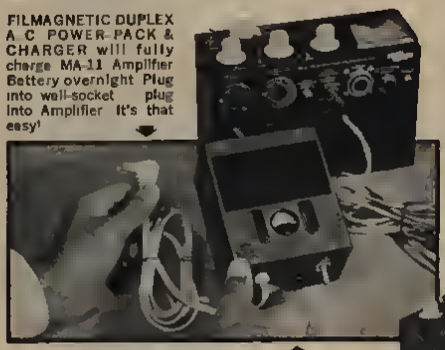

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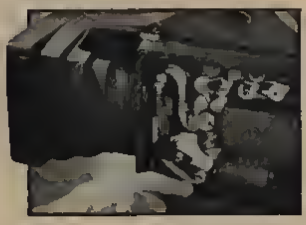

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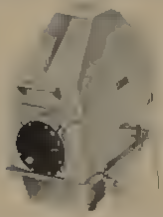

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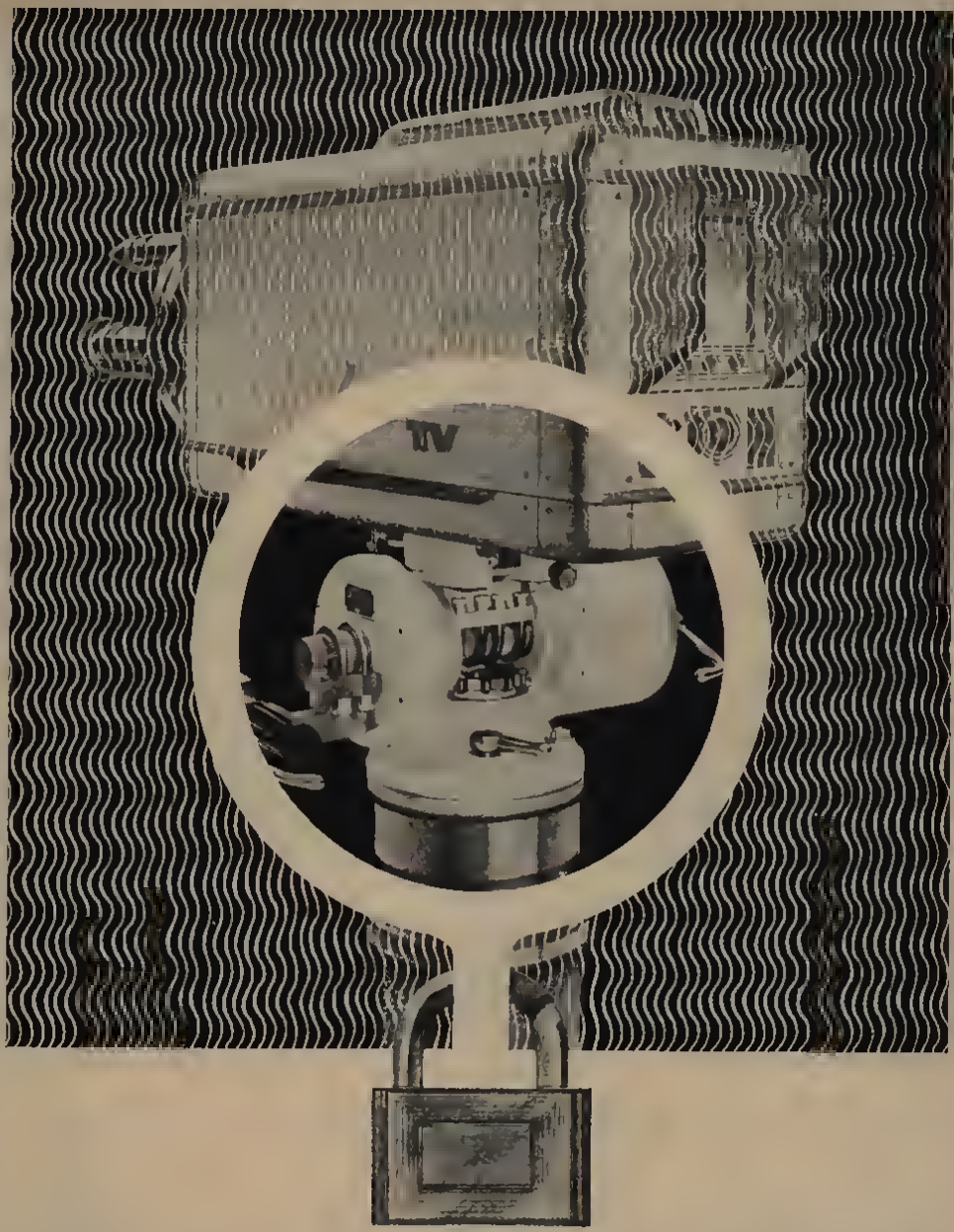

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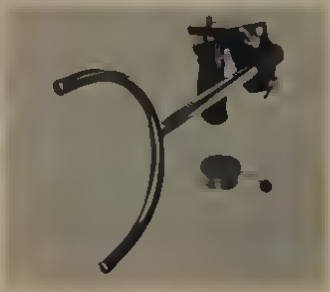

Shoulder Camera Mount

A combination shoulder-pod and pistol grip, designed for Arriflex 16 cameras is announced by Arriflex Corporation of America, 257 Park Ave South, New York 10, N. Y. The shoulder-pod portion is adjustable to suit comfort of individual cameraman Contour grip of the camera itself provides the right hand grip; the pistol grip of the mount is anatomically shaped for the left hand and incorporates a trigger mechanism through which the camera's electric switch may be operated. A special counter-plate is provided so pistol grip may be removed and used separately. List price is $68.00

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Continued on Page 713

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Research engineers at ACF Industries, Berwick, Pe., devised such a test to measure impact and called their Photo Department. ACF photographers, who devote a majority of their time to taking research shots, thought the request outlandish "Precision cameras are simply not built with this kind of usage in mind," they argued. But the engineers said it was necessary if the test was to succeed and considered the camera expendable. The 16mm Bolex wee bolted to the freight car and . . . WHAM! The car was humped against another freight car . . .

The 16mm Bolex recorded every jarring frame of the collision and came away good as new!

Another exacting assignment for Bolex was to help measure impact on ACF's retractable hitches for truck trailers riding piggyback on flatcars Through analyeis of the Bolex films, engineers could see in detail how the springing arrangement responded to loads.

As you can see, Bolex equipment gets plenty of rough use at ACF. Two Bolex 16mm cameras—with a variety of Switar and Yvar lenses—are mainstays Neither Bolex, one of them 12 years old, has ever given a speck of trouble

ACF photographers use Bolex because it is rugged, dependable and offers lightweight compactness and sharp picture quality.

•

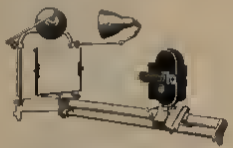
. . . Another example of Bolex getting the job done for the professional!

Bolex Cameras and Accessories
For Every Professional Effect

Bolex Tripod: *Lightweight aluminum construction. Smooth-action pan head tilts 135 degrees vertically. With cable release, $99.50.*

Bolex Unimotor: *Electric motor drives camera through full roll of film at constant speed. Batteries or AC current. $89.50.*

Precision-Ground Lenses: *Switar 10mm f/1.6 extreme wide angle, $149.50; Switar 25mm f/1.4 normal lens, $168.00; Switar 75mm f/1.9 extra-fast telephoto, $145.00.*



Bolex 16mm Super Titler: *Basic Kit—optical bench, main frame, two reflectors, title frame and sliding cradle—$180.50.*

Bolex H-16 Rex: *Reflex viewing, variable shutter, 3 lens turret. With superb Lytar f/1.3 lens—$450.00.*

Bolex cameras and accessories offer the utility for professional work many studios have paid thousands of dollars for. Write for literature and the name of your nearest Bolex dealer.

All prices include F.E.T. where applicable.

PAILLARD Incorporated 100 Sixth Avenue New York 13, N.Y.

BOLEX

WHAT'S NEW

Continued from Page 710

Heavy-duty Motor Drive

A heavy duty motor drive for model 70 Bel & Howell 16mm cameras provides power sufficient to drive same for continuous operation in runs of 400 feet or more. Designed especially for military and industrial instrumentation applications, motor has series type governor control, and provides speeds of 16, 24, 32 and 64 fps. Power requirements are 115-V AC at 2 amps maximum or 28-V DC at 6 amps maximum. Combined weight of camera and motor is 16 pounds. Source is Traid Corporation, 17136 Ventura Blvd., Encino, Calif.

Water Cooler

Designed to handle large quantities of water required by automatic film processors, the Time-O-Lite Bar Ray Cooler No. B570 conditions water to 75° and automatically compensates for incoming water temperature as high as 90° F at rate of 210 gallons per hour. Installation requires only four simple plumbing connections. Measuring 45″ in height, 27″ wide, and 40″ deep, power requirements are 3hp, 230-V 60 Cyc. AC motor, single-phase, 22 amps (running). Source is Time-O-Lite Division, Industrial Timer Corp., 1407 McCarter Highway, Newark 7, N.J.

Film Rollers, Side Bushings

Film rollers and side bushings for 16mm film processing machines are available from Calvin Productions, Inc., 1105 Truman Road, Kansas City 6, Mo. Rollers are available with or without key. Molded of Polyvinyl chloride, Delrin, Polyethelene or Nylon, relieved centers cannot scratch film.

Roller bushings are of Super-Polyethelene, are available in ¼″ or ⅜″ shaft sizes, and can be assembled to 1/16″, 1/32″, or 0″ clearance between rollers.

Film Core Dispensers

Tubular metal dispensers for film cores are available in 16″, 24″, and 36″ lengths from Camera Mart, Inc., 1845 Broadway, New York 23, N.Y. Units are essential accessory for film labs, editing tables, etc. Mount readily on wall or editing table. Also available is 24″ dispenser for 50-ft. or 100-ft. plastic reels.

HFC Repair Splicers

Splicers for repairing 35mm, 65mm and 70mm film employ Mylar transparent tape with an adhesive-back which is applied to back of film. Solenoid action of splicer perforates tape in perfect alignment with film perforations. Source is Hollywood Film Co., 956 No. Seward St., Hollywood 38, Calif. ■

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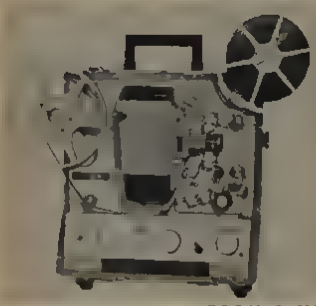
ONLY 10% DOWN!



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Add sound to your 8mm movies Reduce your 16mm films to 8 mm, or enjoy the many 8mm films now available in 8 mm magnetic sound and color

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BEHIND THE CAMERAS

WHAT THE INDUSTRY'S CAMERAMEN WERE SHOOTING LAST MONTH

BY MARION MACHINS

NOTE Asterisks following titles indicate television film productions.

ALLIED ARTISTS

JOSEPH BIROC, ASC, 'Reprieve" (Kaufman-Lubin Prod) with Ben Gazzara and Stuart Whitman Millard Kaufman, director

AMERICAN INTERNATIONAL

CLAUDIO RACCA "Warriors Three" (AIP Anglo Amalgamated, shooting in England) with Janet Blair and Peter Wyngarde Sidney Havers director

CASCADE PICTURES

HENRY FREULICH, ASC, Commercials*

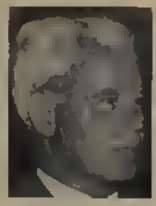
ROY SEAWRIGHT, Commercials*

COLUMBIA STUDIOS

RUSSELL METTY, ASC, The Interns" (Rohl Cohn-David Swift Prod) with Cliff Robertson and Michael Callen David Swift, director

ROBERT WYCKOFF, "The Hathaways"*

JOSEPH COFFEY, "Requiem for a Heavyweight" (Paman Prod shooting in N.Y.) with Anthony Quinn and Jackie Gleason Ralph Nelson, director



NICK MUSURACA, ASC Currently directing the photography of the "Jack Benny Show" at the Desilu Cahuenga Studios.

WILKIE COOPER, "Jason and the Golden Fleece" (Super Dynamation & Color, Morningside World Wide Prods., shooting in Italy) with Todd Armstrong and Nancy Kovack Don Chaffey, director

BOB HUKE, "The War Lover" (Arthur Hornblow Prod , shooting in England) with Steve McQueen and Robert Wagner Philip Leacock, director

CHARLES WELBORN, "Dennis the Menace"*,

FRED GATELY, ASC, "Hazel"*, "Our Man Higgins", (pilot).

IRVING LIPPMAN, "Route 66"*.

PHILIP LATHROP, ASC, "Experiment in Terror" (Geoffrey Kate prod ; shooting in San Francisco) with Glenn Ford and Lee Remick Blake Edwards, producer director

PHILIP TANNURA, ASC, "Shannon"*.

GERT ANDERSEN, ASC, "Donna Reed Show"*

ALDO TONTI, "Barabbs" (Technirama 70 & Technicolor; Dino De Laurentis Prods., shooting in Italy) with Anthony Quinn and Silvano Mangano. Richard Fleischer, director.

CHRIS CHALLIS, 'H M S Defiant" (C'Scope & Color; G W Films, Ltd ; shooting in Spain) with Alec Guinness and Dirk Bogarde. Lewis Gilbert, director

GIUSEPPE AQUARI, "Conga Vivo" (Dino de Laurentiis Prods., shooting in the Congo) with Jean Seberg and Gabriele Ferzetti Giuseppe Benalti, director.

DESILU—Cahuenga Studios

NICK MUSURACA ASC 'The Jack Benny Show"*

ROBERT DE GRASSE, ASC, 'Dick VanDyke Show' *, "Danny Thomas Show"*.

SID HICKOX, ASC, "The Andy Griffith Show"*

HENRY CRONJAGER, "Joey Bishop Show"*

DESILU—Culver City

CHARLES STRAUMER "The Untouchables"*

LOTHROP WORTH, ASC, "The Real McCoys"*

DESILU—Gower Studios

WILLIAM SKALL, ASC, "Window on Main Street"*

CHARLES VAN ENGER, ASC, "Lassie"*

TED VOIGHTLANDER, "Ben Casey"*

ROBERT PLANCK, ASC, "My Three Sons"*.

EDWARD FITZGERALD, ASC Straightaway"*

FOX WESTERN AVENUE

JAMES VAN TREES, ASC, 'Dobbie Gillis"*.

ROBERT HAUSER, "Bus Stop"*

RICHARD RAWLINGS, "Margie"*

FILMWAYS STUDIOS—New York

MORRIS HARTZBAND, 'The Defenders"* (CBS) Boris Sagal and Buzz Kulick, directors.

GENERAL SERVICE STUDIOS

THOMAS TUTWILER, ASC, "International Golf Show"*

ROBERT MORENO, "Adventures of Ozzie & Harriet"*

ROBERT HAGER, "Perry Mason"*

ARCH DALZELL, "Mister Ed"*

HARRY WOLF, "Hennessey*.

GOLDWYN STUDIOS

MEREDITH NICHOLSON, "The New Breed"*

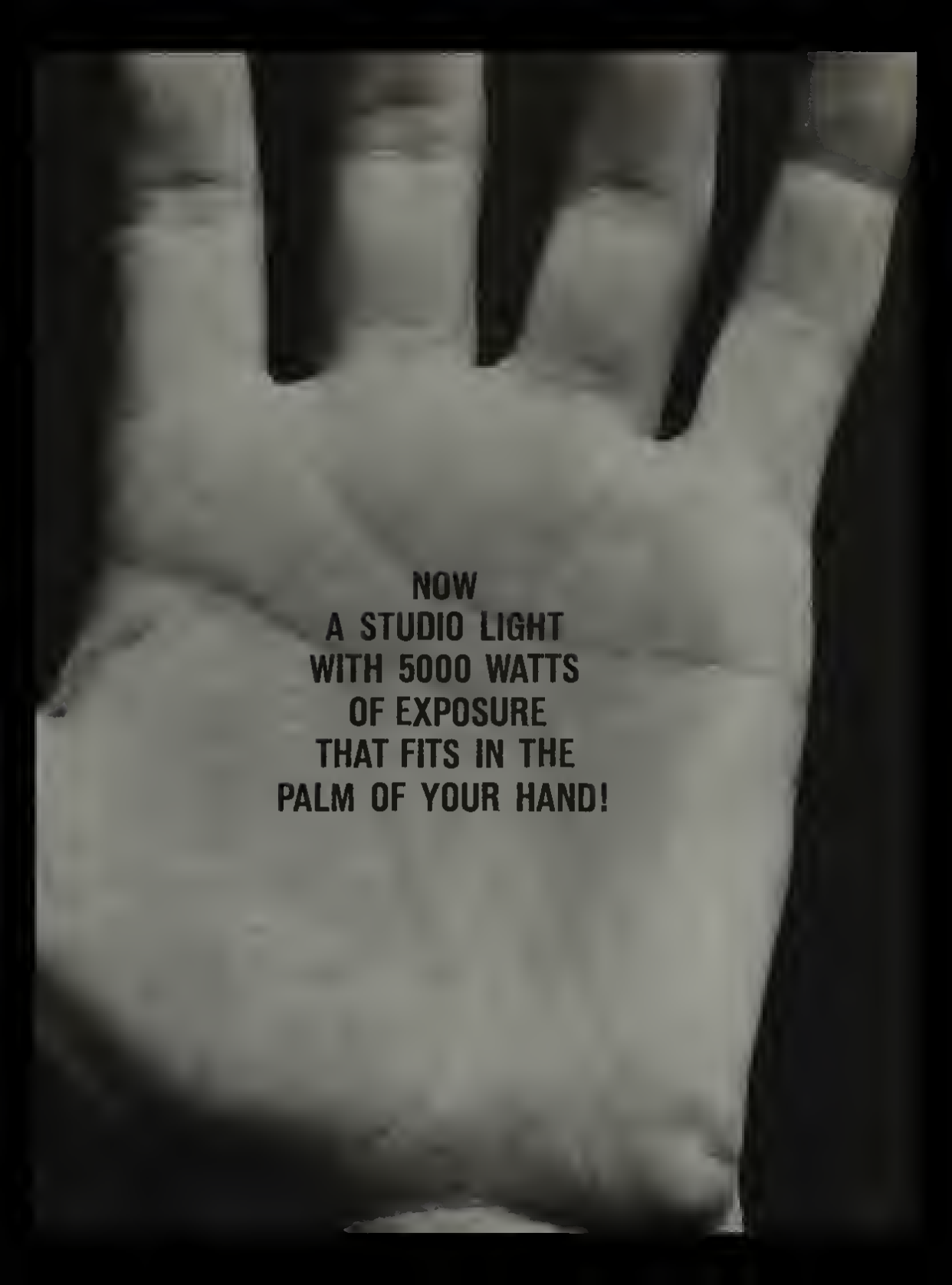
INDEPENDENT

PENNY RICHARDS, 'Joseph Desa" (Dmytryk-Weiler Prod for Columbia release, shooting in Rome) with Maximilian Schell and Ricardo Montalban Edw Dmytryk, director

BORIS KAUFMAN, ASC, "Long Day's Journey Into Night" (Ely Landau Prod , shooting in N.Y.) with Katharine Hepburn and Sir Ralph Richardson Sidney Lumet, director

TED MCCORD, ASC, "Smog" with Enrico Maria Salerno and Annie Giradot Franco Rossi, director

Continued on Page 719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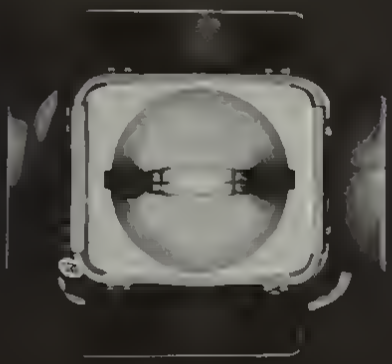

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Unlike regular studio equipment, SUN GUN PROFESSIONAL is inexpensive to buy, inexpensive to maintain, inexpensive to ship on location What's more, SUN GUN maintains original brightness and color temperature for the entire life of the lamp . . . without reducing lamp life!

Where does SUN GUN get its fantastic brilliance? For one thing, it has an amazingly powerful 1000-watt High-Silica Halogen lamp with 65,000 center beam candlepower It also has a *special reflector* with over 750 light-intensifying surfaces

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SEE NEXT PAGE FOR COMPLETE DETAILS ON BUILT-IN FEATURES AND SPECIALIZED STUDIO ACCESSORIES.

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UNIVERSAL BRACKET Fits all cameras. Special bi-position mounting hole allows unit to be located at the side or 30° to the rear of camera.

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FLOOD LENS Dual-purpose lens affords choice of 115° x 50° or 60° x 53° beam for broader light coverage of subject area

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BEHIND THE CAMERAS

Continued from Page 714

FLOYD CROSBY, ASC, "Premature Burial" (Eastman Color & Wide Screen, Roger Corman Prod.) with Ray Milland and Hazel Court. Roger Corman, producer-director.

BURNETT GUFFEY, ASC, "Kid Galahad" (Mirisch Co., UA release, color) with Elvis Presley and Gig Young. Phil Karlson, director.

JOE MACDONALD, ASC, "Taras Bulba" (Harold Hecht Prod. for UA release, shooting in Salta, Argentina) with Tony Curtis and Yul Brynner. J. Lee Thompson, director.

WILLIAM STORZ, ASC, "Candid Camera Show"*, Commercials*.

JACK HILDYARD, "The Road to Hong Kong" (Melnor Prod.; UA release; shooting in London) with Bing Crosby, Bob Hope and Joan Collins. Norman Panama, director.

SAM LEAVITT ASC, "Advise and Consent" (Otto Preminger Prod.; Columbia release; Panavision shooting in Washington, D.C.) with Henry Fonda and Charles Laughton. Otto Preminger, producer-director.

KEYWEST STUDIOS

FRED WEST, ASC (Family Films) Series of Religious pictures.

KTTV STUDIOS

RAY FOSTER ASC Commercials*

METRO-GOLDWYN-MAYER

LUCIEN BALLARD ASC, "Guns in the Afternoon" (Color & CScope) with Randolph Scott and Joel McCrea. Sam Pickinpah, director.

ARTHUR ARLING ASC "Boys Night Out" (CScope & Color, Embassy Kimco Filmways Prod.) with Kim Novak and James Garner. Michael Gordon, director.

CLAUDE ROZIER, "Riffi in Tokyo" (Cipra Prod.) with Karl Boehm and Charles Vanel. Jacques Deray, director.

DALE DEVERMAN, "Call to Danger"* (pilot).

ALDO TONTI "Damon and Phythias" (Color & Wide Screen, shooting in Rome) with Guy Williams and Don Burnette. Curtis Bernhardt director.

PAUL VOGEL, ASC
Directing the photography of "Wonderful World of the Brothers Grimm" in Cinerama at MGM studios

WILLIAM DANIELS ASC, "How the West Was Won" (MGM-Cinerama Prod., Episode 2, shooting in Colorado) with Gregory Peck and Debbie Reynolds. Henry Hathaway, director.

MILTON KRASNER, ASC, "Two Weeks in Another Town" (CScope & Color, shooting in Rome) with Kirk Douglas and Edw G. Robinson. Vincente Minnelli, director.

LUCIEN ANDRIOT, ASC, "National Velvet"*

HARKNESS SMITH, "Dr. Kildare"*.

WILLIAM SPENCER, "Crin's Hundred"*.

ROBERT PITTACK, ASC, "Father of the Bride"*

ROBERT SURTEES, ASC, "Mutiny on the Bounty" (Ultra Panavision & Color; shooting in Tahiti, Arcola Preds.) with Marlon Brando and Trevor Howard. Lewis Milestone, director.

PAUL VOGEL, ASC, "Wonderful World of The Brothers Grimm" (MGM Cinerama, Geo. Pal Prod.) with Laurence Harvey and Karl Boehm. Henry Levin and George Pal director.

JACK SWAIN, "Rawhide"*.

LEE GARMES, ASC
Directing the photography of "Hemingway's Young Man" in CinemaScope and color at 20th Century-Fox studios

PARAMOUNT STUDIOS

DANIEL FAPP, ASC, "The Pigeon That Took Rome" (Llenroc Prods., shooting in Rome) with Charlton Heston and Elsa Martinelli. Melville Shavelson, producer-director.

WILLIAM CLOTHIER, "The Man Who Shot Liberty Valance" (John Ford Prods.) with James Stewart and John Wayne. John Ford, director.

WILLIAM MARGULIES, ASC, "Outlaws"*.

WALTER CASTLE, ASC, HASKELL BOGGS, ASC, "Bonanza"*

FRANK PHILLIPS, "Have Gun Will Travel"*.

PARAMOUNT SUNSET STUDIOS

FLEET SOUTHCOTT, "Gunsmoke"*

LESTER SHORR, ASC, "Pete and Gladys"*.

REPUBLIC STUDIOS

CHARLES BURKE, "Target the Corruptors"*

GEORGE DISKANT, ASC, "Dick Powell Show"*

WILFRID CLINE, ASC, "Robert Taylor Detectives"*.

HOWARD SCHWARTZ, "Mrs. G Goes to College"*

REVUE STUDIOS

RAY RENNAHAN, ASC, "Laramie"*

JOHN RUSSELL, ASC, BENJ. KLINE, ASC, ROBERT GOUGH, "Frontier Circus"*

ELLIS THACKERY, ASC, "Wells Fargo"*

JOHN WARREN, ASC. WILLIAM MARGULIES, ASC, "The Investigators"*

LIONEL LINDON, ASC. JOHN WARREN, ASC, HENRY FREULICH ASC, "Thriller"*

ROBERT GOUGH "Tall Man"*; 87th Precinct"*

DALE DEVERMAN WILLIAM MARGULIES, ASC, JOHN WARREN, ASC, "Alfred Hitchcock Presents"*

BENJ. KLINE, ASC, WILLIAM MARGULIES, ASC, FRED MANDL, ASC, "Checkmate"*

HENRY FREULICH, ASC, BENJ. KLINE, ASC, "General Electric Theatre"*

JOHN WARREN, ASC, JACK MACKENZIE, ASC, FRED MANDL, ASC, "Bachelor Father"*

LIONEL LINDON, ASC, BENJ. KLINE, ASC, "Alcoa Theatre"*

Continued on Page 762

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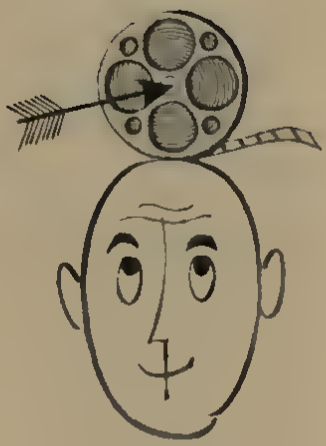

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Q & A

TECHNICAL QUESTIONS AND ANSWERS

Q.—*How was the car in Walt Disney's "Absent Minded Professor" made to appear flying in the air, also, how were the basketball players in this same picture catapulted into the air as if actually bouncing high because of the trick rubber compound on soles of their shoes?*—H C T. Woodstown N J.

A.—The flying car sequences were achieved by a travelling matte process that utilized cadmium illumination. The process involved suspending the car against a red background illuminated with red lights, and lighting the people and car with green light. These scenes were photographed on Eastman Color negative with a standard Mitchell 35mm camera. Separation negatives were then made from the E-C negative, and with the combined use of the optical printer and previously photographed aerial backgrounds, the sequences were completed.

The players in the basketball game were made to jump to enormous heights by means of "invisible" wires and compressed air catapults operated out of camera range.

Q.—*How can I shoot a scene in a drive-in theatre and be sure to register the live action on the drive-in screen?* —L R., Manhattan Beach, Calif.

A.—Chances that you can successfully photograph such a scene with an ordinary motion picture camera are slim. First, the brilliance of the average drive-in theatre screen is insufficient to enable you to photograph a picture thereon with a conventional camera. If you did get an image, it would vary in intensity from frame to frame and have other adverse visual effects due to fact that your camera shutter would not open and close in sync with shutter of projector.

When a scene such as you describe is produced for a feature film, it is usually done by background projection

Continued on Page 722

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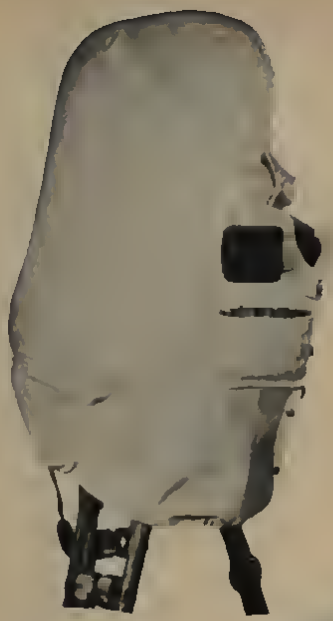

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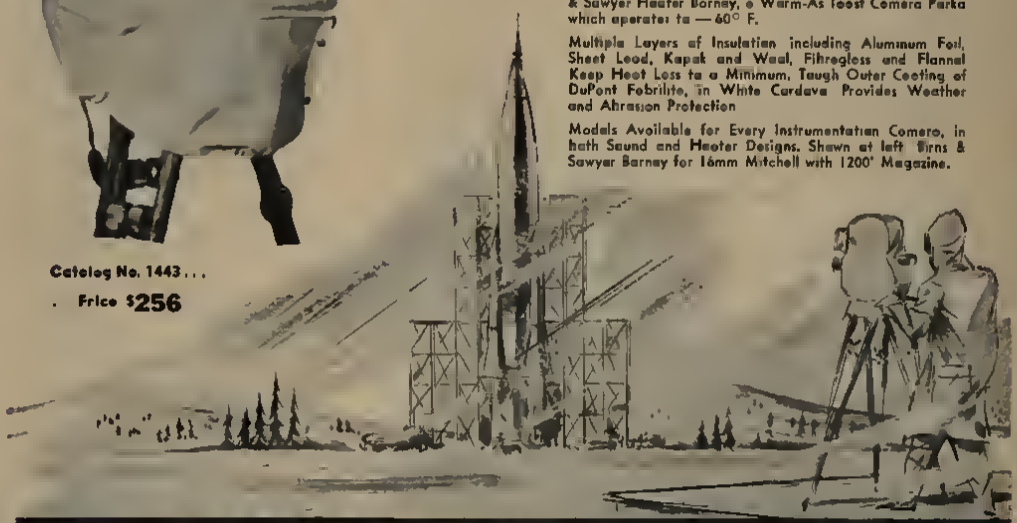

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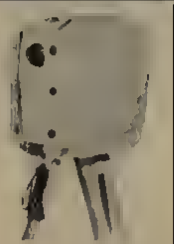

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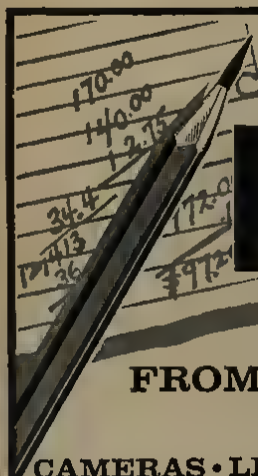
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QUESTIONS & ANSWERS

Continued from Page 720

or travelling matte process, both of which involve costly and intricate equipment

Q.—*I am interested in a filter slot for my Bell & Howell 70 DR camera. A local camera repair shop proposes a slot that will slant forward about 1/16 of an inch from top of camera. I am told filters either in front or behind the lens should be parallel to the film plane.*—H. R., Seattle, Wash

A.— Where the camera does not permit viewing the scene through the taking lens and the filter, it is possible (but of course not always) that some distortion may occur if the filter is slanted as little as 1/16 of an inch. And a gelatin filter used behind the lens at any angle is likely to prove a source of trouble

For these reasons, it is advisable to mount the filter in front of the camera lens—either in a filter mount or in a matte box

Q.—*I recently purchased several rolls of 16mm Ansco Color sound film which I cannot run through my Keystone 161 projector. It would cost me over a hundred dollars to have a duplicate made on double-perforated film. Where can I have this film perforated on the other edge so I can project it?*
E. H. K., Milwaukee, Wisc

A.— Flora Color, 1728 No. Mariposa St., Hollywood 27, Calif., can reperforate your 16mm Ansco Color film

Q.—*To edit 16mm films soon to go into production, we shall need a 16mm sound projector that can be stopped, started and single-framed by remote control. Is such a projector available?*
—R. L., Neenah, Wisc

A.— L. W. Photo Products Co., P. O. Box 147, Northridge, Calif., are marketing the L. W. Photo-Optical Data Analyzer, which is a converted Kodak 16mm Analyst projector that permits variable speed viewing of silent 16mm films from "still projection" to 24 fps without flicker. Its operation is remote controlled. ■

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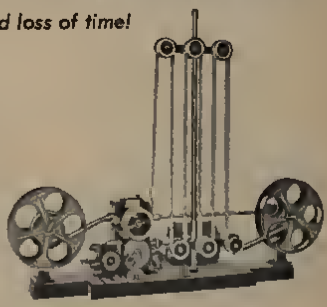

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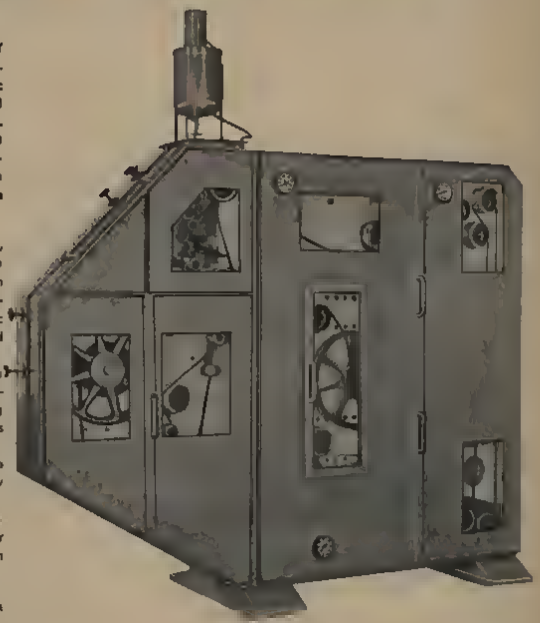

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PRE RUMBLE BALLET—Daniel Fapp's camera crew, high up on Chapman crane boom, lines up Panavision 70 camera during a rehearsal of New York slum gang members in ballet type dance number for West Side Story. A lengthy and impressive sequence of the picture, it was photographed in actual New York City streets, where powerful booster lights augmented sunshine to illuminate the scenes.

PHOTOS BELOW and at right represent cross-section of the fine color photography of West Side Story. In scene below gang members advance on a rival gang in song and dance. Some effective lighting is displayed in next scene of the lovers discovering each other. And in scene at far right Natalie Wood and Rita Moreno apprehensively await outcome of gang fight.

The photography of

"WEST SIDE STORY"

By HERB A. LIGHTMAN

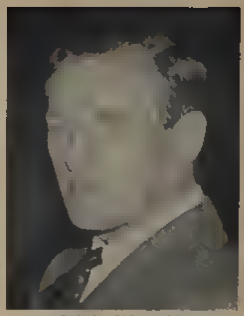
As "West Side Story" begins to throb and slash its way across the giant Panvision-70 screen, even the most blase spectator becomes sharply aware that he is watching something unique in a motion picture. Long after the film's final fadeout he will still be enmeshed in its spell, jolted by its impact. For "West Side Story" packs a multi-megaton wallop.

Technically, the picture approaches the peak of cinema artistry in that it is a perfect amalgam of the many separate crafts and skills that comprise this complex art. It employs the various cinematic elements as they are ideally meant to be used—imaginatively, excitingly and with the highest technical skill. Although adapted from a Broadway hit, the picture is far from a photographed stage play. Greatly expanded in scope and because of the expert application of the fluid, kinetic techniques peculiar to the screen medium, it emerges as pure cinema.

Imaginative Lighting

High up on the list of creative talents responsible for the film's excellence is Director of Photography Daniel Fapp, A.S.C., whose imaginative lighting and camerawork complement and enhance the dynamic concept of the total production.

"West Side Story" is no ordinary musical filled with pretty chorines and catchy tunes. Rather, it is a serious drama—with music; somewhat approaching opera in form. As a powerful indictment of prejudice and the social conditions that breed juvenile delinquency, it has something important to say and says it with thunderbolt force. There are, of course, moments of lightness—of tender romance and even hilarious comedy—but it is essentially a serious story about serious social problems interwoven with a tragic love story.



DANIEL FAPP, ASC

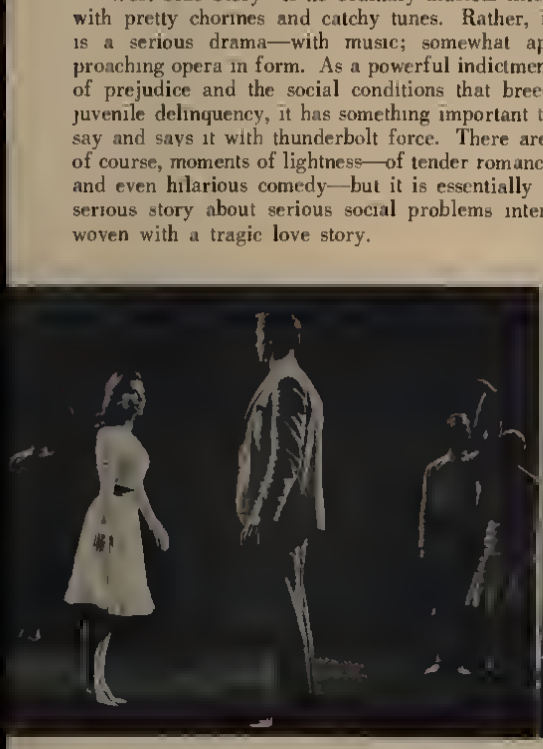
TWICE an Academy Award contender for best Cinematography ("Desire Under The Elms," 1958; "The Five Pennies," 1959), Daniel Fapp is a certain contender again this year with "West Side Story." For 17 years he was one of Paramount Studios' top directors of photography. He left Paramount in 1959 to freelance. His most recent assignments "One, Two, Three," for Mirisch Brothers, "The Pigeon That Took Rome," Paramount

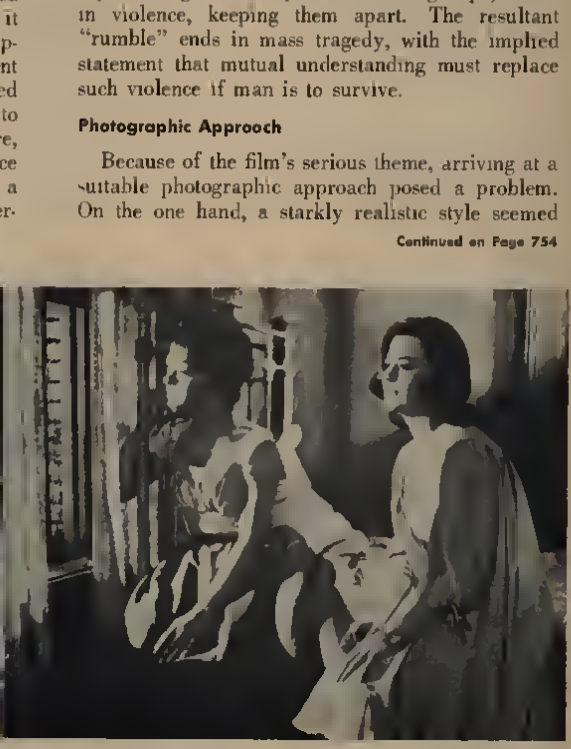
The basic plot—with no apologies to Shakespeare needed—is that of "Romeo and Juliet." But this time the place is upper West Side Manhattan; the "Romeo" is Tony, an idealistic native-born American boy; while the modern-day "Juliet" is Maria, a pure and beautiful recent arrival from Puerto Rico. They fall hopelessly in love at first sight during a dance in the high school gymnasium, but the local Montagues and Capulets (rival street gangs representing their respective ethnic groups) clash in violence, keeping them apart. The resultant "rumble" ends in mass tragedy, with the implied statement that mutual understanding must replace such violence if man is to survive.

Photographic Approoch

Because of the film's serious theme, arriving at a suitable photographic approach posed a problem. On the one hand, a starkly realistic style seemed

Continued on Page 754





WHAT SHALL WE PUT IN THE CAMERA?

If your release prints are to be 16mm black-and-white, you may use any of five different camera films.

YOUR DECISION AS TO what film to use in the camera—16mm or 35mm, color or black-and-white—should take into consideration 1) whether 35mm as well as 16mm prints will be required, 2) whether both color and black-and-white prints may be required, 3) the difference in laboratory costs your choice may involve, 4) protection of the original film, 5) quality of the eventual 16mm release print, and 6) any complications which may be involved in using a particular type of film stock.

General Film Laboratories, Hollywood, in its monthly publication *Rewind* for September, points out that where the prints are to be in 16mm, there are five different choices one can make as to the film to use in the camera:

1. 35mm black-and-white negative.
2. 35mm color negative.
3. 16mm black-and-white reversal.
4. 16mm color reversal (Ektachrome).
5. 16mm black-and-white negative.

In the ensuing paragraphs from the *Rewind* article, pros and cons are offered for each choice. If both 35mm and 16mm black-and-white prints will be required, 35mm B&W negative is the obvious choice for the camera. While it is possible to make a blow-up B&W negative in 35mm size from 16mm width B&W film, the result cannot compare in quality with an original 35mm exposure, and part of any economy realized in shooting 16mm for 35mm would be offset by the blow-up costs.

If both color and B&W prints are to be made, color film is the only choice for exposure—either 16mm color reversal or 35mm color negative, with the same qualifications as in the preceding paragraph. For instance, you wouldn't shoot 35mm color unless 35mm color prints were required. (A good 16mm color original will blow-up successfully to 35mm, but this is another subject).

Many final choices are dictated by budget—which camera stock will cost the least and still do the job acceptably. On this basis, 35mm is eliminated in favor of one of the 16mm films. This is because the producer would pay more for raw stock, processing, and other related services in 35mm than he would for comparable quantities of raw stock and lab services in 16mm.

The producer can provide for protection of his original film with any of the various types of raw stock available to him (but with varying effects on quality, which we'll go into later).

If he uses 35mm negative, he may 1) make a 35mm master positive (still referred to by lab men as a "fine grain") from the edited negative, to be set aside for possible use should the original negative be damaged or worn; or 2) he may immediately have a dupe negative made from the master positive, and have all release prints made from the dupe. Should the dupe become damaged or worn in printing, another dupe is then made.

If he exposes on 16mm B&W reversal film, he normally edits his scenes in A&B rolls, from which is printed a 16mm dupe negative. Release printing is from the dupe negative, which is easily replaced.

The same steps are followed if he shoots on 16mm color reversal stock, such as Ektachrome. The original is edited in A&B rolls, from which the lab makes a 16mm panochromatic dupe negative for black-and-white release printing (or a 16mm color internegative for color positive release printing).

Protection is also possible with 16mm B&W camera negative film, following the same steps as in 35mm—making a 16mm master positive and from it a dupe negative. However, this method results in some loss of quality.

Up to now, we can all pretty much agree. But, when we get to the question of comparative quality of the 16mm release printing by the various methods, we may run into disagreement.

Setting aside the print differences that may result from differences in the camera equipment used, the skill of the lighting man and cameraman, and subject matter, the following evaluations by General offer a dependable guide:

Top quality in a 16mm print is achieved by exposing on 35mm negative, then reduction printing of the print or release contact printing from a 35/32mm dupe negative—reduced from a 35mm master positive.

Continued on Page 750

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MAGIC WITHOUT MATTES

How Chevrolet's "Magic Ride" TV commercial was produced without benefit of conventional traveling matte techniques.

By JOSEPH HENRY

IN HOLLYWOOD, where photographic or other production secrets are often jealously guarded, we have come to expect evasion whenever details are sought about the methods used to achieve some extraordinary visual effect in a picture. One hardly expects this attitude to prevail in the business of making TV film commercials. Still, when one thinks of it, TV film makers have the same reason for maintaining production secrets, too: to prevent rivals from employing their hard-earned methods for competitive purposes. Sometimes, the secrecy maintained is only temporary, to give the developer of the idea opportunity to protect his achievements with a patent or copyright.

Today, more than a year after its production and exhibition on television, the full story of how scenes showing two people riding in an invisible car were made has only partially been revealed. Ever since the "Magic Ride" commercial for Chevrolet automobiles first flashed on the nation's TV screens, people both in and out of the film industry have asked how the unusual visual magic was accomplished. The commercial, readers may recall, pictured a young couple blithely riding in an invisible car until the final seconds, when a 1961 Chevrolet materializes around them.

The commercial was made by Arco Film Productions, Inc., of New York City under the direction of Arco president and executive producer Rene Oulmann, working in association with Cinema et Pub-

Continued on Page 752

FRAME REPRODUCTIONS from Chevrolet's "Magic Ride" TV film commercial. Couple rides invisible car through French countryside to demonstrate its smooth riding qualities and other features. The car, a new 1961 Impala, materializes around them in the closing scene. Trick effect was produced entirely without use of mattes.

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PHOTOS ABOVE from "Summer and Smoke" reflect some imaginative lighting that marks scenes in this artfully photographed color production. A ceiling background is given an interesting pattern of light and shadow in top photo. Scene of men battling in cockfighting pit is notable for dramatic effect of single overhead light source illuminating it. Bottom photo shows Lang's technique of accenting lighting on most dominant character in scene—in this case Geraldine Page.

CAMERA ROLLING—Director of Photography Charles Lang, Jr., with hand raised (far left), signals starting of camera on exterior scene with Laurence Harvey and Geraldine Page for "Summer and Smoke," photographed in Eastman Color with Panavision lenses for Paramount Studios.

THE LANG TOUCH

Charles Lang, Jr., ASC, whose imaginative camera and lighting style enhanced such films as "Gun Fight at the O.K. Corral," "Last Train From Gun Hill," and "The Magnificent Seven," excels all these with his color photography of "Summer and Smoke."

By DARRIN SCOT

THE TRANSFORMATION of a Tennessee Williams play into a motion picture is always a challenge, photographically, for there is inevitably an undercurrent of neurotic fantasy—a psychological never-never land of fears and phantoms existing solely in the minds of the characters, exploding ultimately into violent drama. Yet, the audience must be made to feel these unseen forces in order to bridge the gap of empathy with the tormented personalities of the story. Capturing this nebulous neurotic aura in visual terms is a delicate task, for one slightly wrong note sounded in as intimate a medium as the film could quickly turn drama into melodrama. The application of cinema techniques to Williams's plays, therefore, has usually been with extreme caution lest the delicate balance of credibility be strained. It is probably for this reason, too, that until now all of his dramas except "Cat On A Hot Tin Roof" have been filmed in black-and-white.

Paramount Pictures' "Summer and Smoke" is the second Williams play to come to the screen in color. In photographing it, Director of Photography Charles Lang, Jr., ASC, has imbued the production with

all the dramatic impact of black-and-white photography, but at the same time has made significant all the subtleties that only color can convey. Noteworthy is the fact Lang has studiously avoided any suggestion of "postcard" richness in his handling of the tinted medium.

In meeting the challenge of interpreting an almost dreamlike stylization of dramaturgy in cinematically realistic terms, Lang has managed to hit exactly the right visual note. His photography captures an almost tangible awareness of the fantasies existing in the minds of the main characters (both of whom refuse to face life as it really is) while at the same time never losing contact with reality and the feeling of real things happening in real places.

Wide Departure for Lang

The result is a sensitively understated, incisively keyed visualization of a mood vehicle, with the moods running a wide gamut. It is, by turns, brooding, ironic, humorous, wistful, piteous, lusting with sex, brutal and tragically compelling. In terms of style it is for Lang a wide departure from the lusty, leather-and-sweat photography which he applied so expertly to outdoor epics like "Gun Fight at the O.K. Corral," "Last Train From Gun Hill," "The Magnificent Seven" and "One-Eyed Jacks." Dramatically he points up every facet of Williams' sometimes poetic, sometimes brutal story.

In the film, Geraldine Page plays the repressed, idealistic daughter of a Southern small-town minister. Laurence Harvey is the handsome, wildly rebellious doctor who lives next door and whom she has loved ever since they were children. The

LOOKING DOWN on camera crew shooting close range scene of Harvey and Miss Page Lang, standing right of camera, watches action closely to make sure Miss Page does not step outside range of camera, which is indicated by tape marks on floor beside her

period is circa 1916. She is shy, sensitive, living within herself, imbued with the importance of the spiritual in her devotion to the carnal young medic. Too late, she admits her need for his physical love. Humbly, she begs him to take what she has denied him—but, by then, she has been placed on a pedestal by the doctor as his inspiration for the lesson in values she has taught him in conquering his lecherous nature. For them there can be no exchange of violent passions. He has found another, more earthly, love—and she settles for a shabby substitute.

Visual Moods Dominate

The film exudes visual mood from the opening frame of the prologue. A stone statue of a woman stands coldly brooding in a silent woodland glade. Fog swirls about the trees which seem to stretch off to infinity. In the distance, weird nether-worldish characters appear skulking between the trees. It is only when they get quite close that we realize they are children in witches' garb carrying jack-o-lanterns. The photographic mood, frosty and ominous, was created by a combination of artificial fog (made from dry ice), a fog filter over the lens and sketchy lighting. In producing such an effect, Lang was careful not to overlight. In fact, he was inclined to dispense with all but the most essential

Continued on Page 746

CAMERA SET UP for scene in Dr. Harvey's office where he gives Miss Page medical checkup. Director of Photography Lang (center) keeps close watch on proceedings to insure actors play scene to fit the lighting. Note tape marks on floor indicating limits of player movement when camera is pulled back

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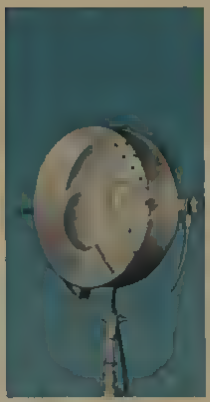

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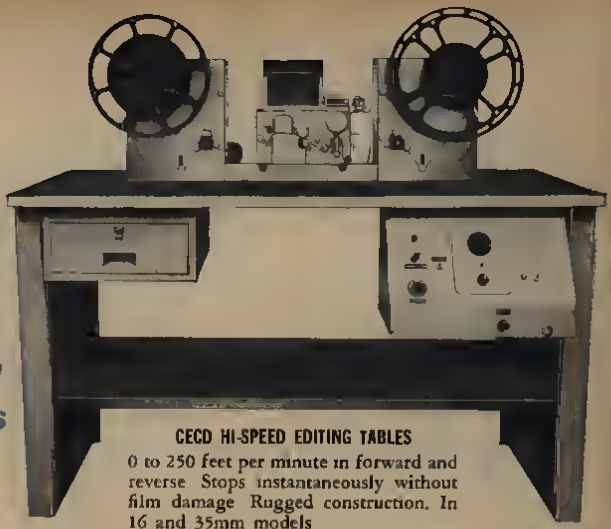

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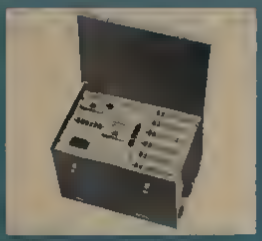

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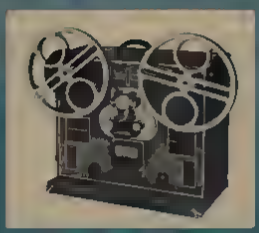

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FIG 1—Preparing to shoot combination abstract and main title for "The West Side Story." The author (left), assisted by Cecil Love, carefully worked out in advance an extremely precise pattern of camera movement, lighting cues, etc., to achieve the desired screen effect.

FIG 2—Abstract pattern was first photographed against background of subtley changing colored light.

FIG 3—Then the camera pulled back taking in a larger area of the art work, including the title. Simultaneously, the foreground lights were raised to full intensity so that both abstract and title letters were rendered while against the colored background.

EFFECTS AND TITLES for "WEST SIDE STORY"

By LINWOOD G. DUNN, ASC

IN HOLLYWOOD, the name Lin Dunn is synonymous with special effects. Dunn was head of the Photographic Effects Department at RKO Studios up to the time of its closing and subsequent sale to Desilu Productions. Beginning his motion picture career in New York City in 1923. Dunn later joined Pathe and went to Hollywood in 1926 to photograph serials. He started with RKO Studios in 1929 and during the ensuing 28 years he was an optical effects cameraman, a director of photography, and finally head of the studio's Photographic Effects Department. During this time he received screen credit on many of the studio's productions.

Later, in collaboration with Cecil Love, his associate for over twenty-five years, and The Acme Tool & Manufacturing Co., he designed the first modern special effects optical printer for the U. S. armed forces' photographic units. These printers subsequently became the standard for all Hollywood major studios and film laboratories, and have also been used throughout the world. In 1944, the Academy of Motion Picture Arts and Sciences honored the Acme-Dunn Optical Printer with a Technical Award for its excellence and importance to the industry.—ED.

EARLY IN THE pre-production planning of Mirisch Pictures' "West Side Story," producer Robert Wise asked me to explore some new ideas in optical printing and color effects that might be used to enhance this production, adding ". . . the sky's the limit!"

With the aid of my very capable assistants, Cecil Love and Don Weed, an extensive program of experimentation and development was carried on during the next several months. This included color derivations created by manipulation of certain combinations

of contrast and chromatic distortion variations. Through the use of special photographic printing and processing techniques, we reproduced on motion picture film some of the artfully fascinating color effects previously found only in modern still photo techniques.

Unfortunately, many of these experimental color effects proved too extreme for use in "West Side Story," being better suited for use in sequences of fantasy and unreality. Nevertheless, a wealth of knowledge was gained through these experiments and it is hoped that many of the effects will some day be utilized. By modifying some of them, a number of interesting ideas evolved which were used in "West Side Story" and proved most effective in enhancing certain key spots in the picture.

These are evident in (1) the unusual visual effects and main title which precede the picture during the overture; (2) a number of optical printing color effects throughout the picture itself; and (3) the sequence of credit titles which closes it.

The camera set-up and the artwork used in producing the abstract pattern and picture title, which occupy the screen during playing of the overture, are seen in the photo on the cover. My associate, Cecil Love, and I are pictured checking the camera and other equipment prior to making a take.

In my earlier discussion with Robert Wise, he indicated he wished something visual for the Panavision-70 wide-screen that would not be pictorial enough to detract from the overture music, and suggested the possible use of subtle color changes that would harmonize with the mood changes in the musical score.

The abstract shown on the glass panel (above the main title lettering) was generated from the open-

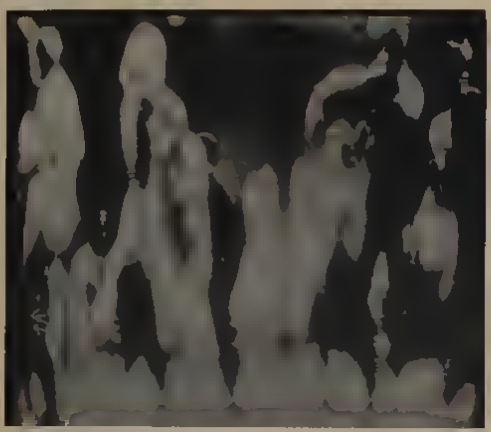

FIG. 4— An almost abstract whirl of color and movement establishes the high spirited atmosphere as Maria is transposed from the dress shop to the gymnasium dance floor. Effect was accomplished by successive printing through three separation filters. Picture above is enlargement from unsqueezed anamorphic frame of the motion picture film.

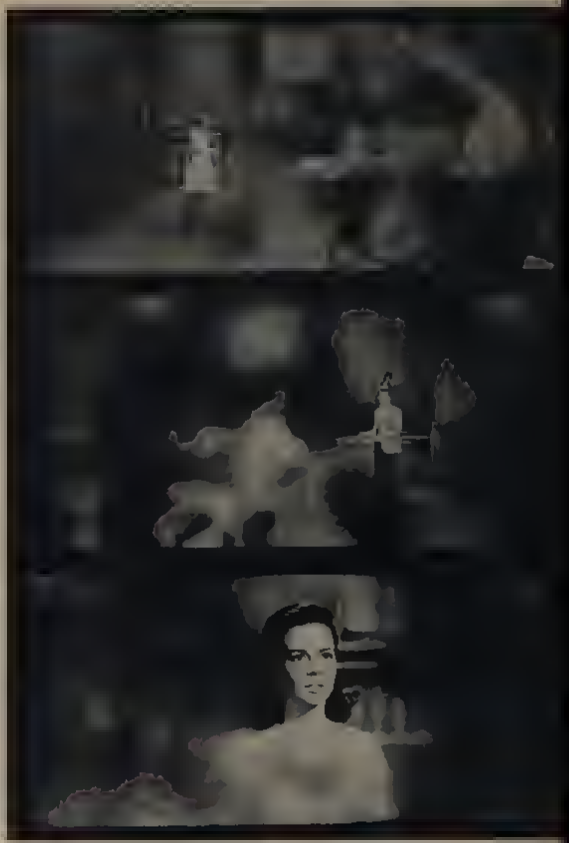

FIG. 5—Reproduction of three frames of 65mm color film representing the unique sequence in which Maria and Tony suddenly discover each other on dance floor. Almost everything else in the scenes except the figures of Maria and Tony are distorted, diffused, and the colors subdued. The 'out-of this world' effect was accomplished by use of special distortion glasses properly positioned in the printer aperture.

ing scene of the picture. (Fig. 2.) This we photographed as a silhouette against a background of changing colors.

As the overture progresses, during screening of the picture, through the musical numbers "Quintet," "Tonight," "Maria," and "Mambo" — blending from one to the other through musical transitions— the abstract remains a silhouette as the colors change, until approach of the finale. Here the color change compliments a sudden shift in musical tempo and, through a slow camera pull-back, the title "West Side Story" is revealed (Fig. 3). At this point the foreground lights fade in, transposing the abstract itself into a magnificent aerial view of Manhattan Island—achieved through a smooth lap-dissolve with the actual live-action view of the island by means of optical printing.

To execute this rather lengthy effect, it was nec-

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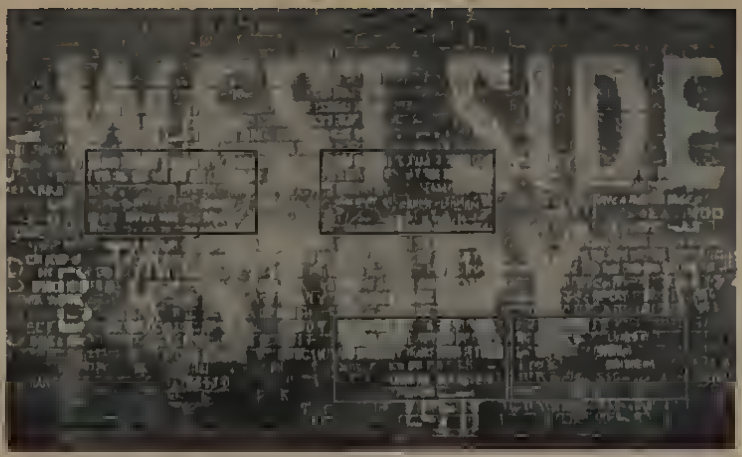


FIG 6—In keeping with theme of the picture, the credit titles were artistically scribbled on walls, doors, traffic signs, etc., such as might be found in New York's west side. In all, nine sets were constructed for these titles. The one at left—a weathered and defaced brick wall—included four of the many credit cards. These are purposely outlined in the picture to aid the reader in locating them. Photography of the series was a continuous operation, with the camera dolly mounted and moved on cue from title to title.

FIG 7—Shooting the first title card, shown in detail in Fig 6 above.

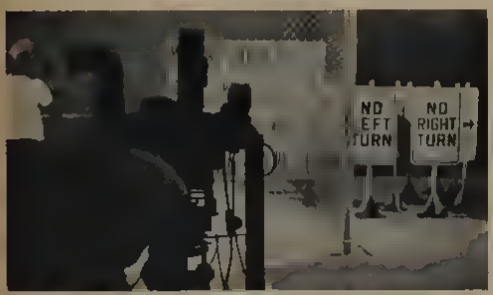
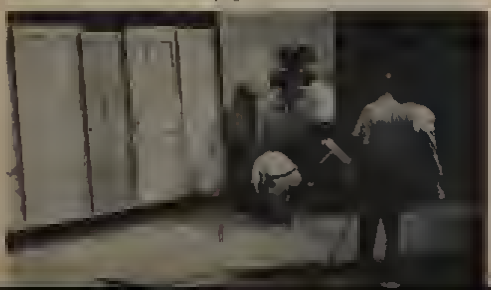


FIG 8—Lining up the camera on a title scribbled between the lettering of sign mounted on fence.

FIG 9—Making a run through of a carefully planned dolly maneuver. The various stops and starts were marked on stage floor, and the various camera elevations on an upright column next to the camera.



essary to devise a set-up that would be flexible enough to facilitate quick and easy changes from one colored light to another, permit accurate timing of the changes, provide control of the camera pull-back speed—which had to be varied during the pull-back move—and to permit changes in the quality of the abstract image by means of the lighting itself.

The photographic set-up, as pictured on the cover and also in Fig. 1, utilized a tubular dolly track, twenty feet in length, over which the tripod-mounted 65mm camera was drawn by a sprocket-and-chain drive powered by a variable-speed thyratron motor. On the camera was a 105mm lens, the focusing of which was remote-controlled by selsyn follow-focus units.

Color changes in the abstract background were made through manipulation of three rheostats controlling three pairs of photo-lamps that were fitted with narrow-band red, green and blue separation filters. The changes were made according to a timing pattern worked out to fit the music. Integration of the three primary additive colors, as they varied in relative intensity through adjustment of their respective voltage controls, afforded a wide range of color changes which could easily be adjusted to any timing requirement. Precise timing of these changes was facilitated by a large sweep-hand clock. This clock also aided us in controlling the camera dolly speed to the footages required.

Our initial photography of this combination effect and title was continuous for a period of four minutes—the duration of the overture—with all lighting changes made as planned. Later, however, we decided to take advantage of the flexibility afforded by Technicolor's 70mm A&B roll release printing, and we shot the various colors as separate film units. This had the further advantage of giv-

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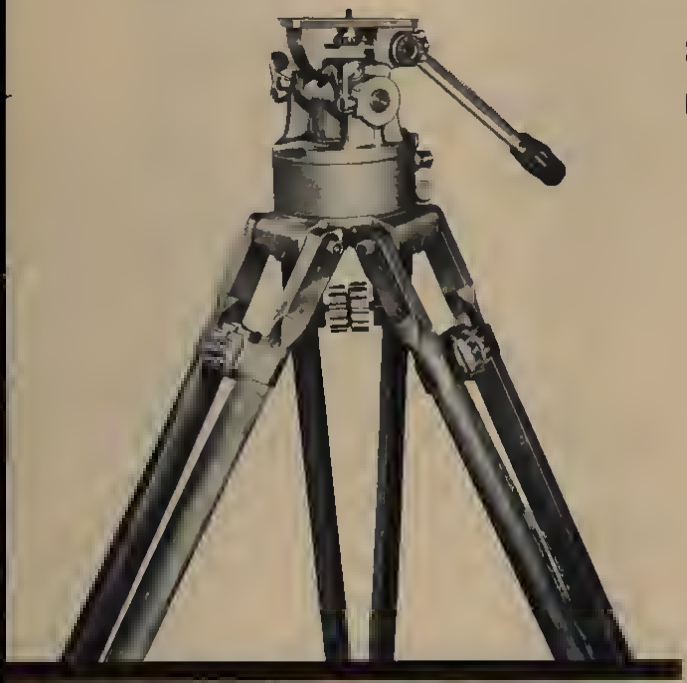

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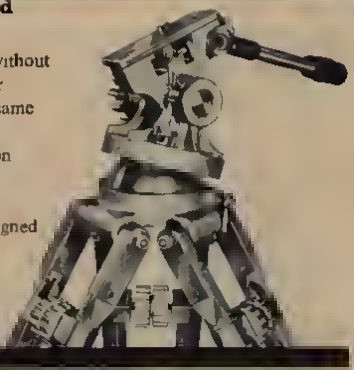

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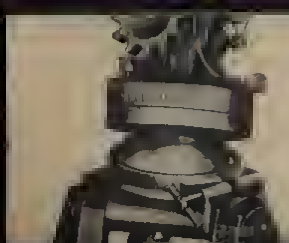

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CINEMATOGRAPHER FILM PRODUCER Ralph Lopatin shoots a tight closeup of actress Susan Strassberg (center) being interviewed by Cissie Walker (right) and Sue Evers Scene is garden of Miss Strassberg s apartment in Rome, Italy This and other scenes filmed in Italy and France by Lopatin made up feature segment of Fashion Spectacular recently televised locally by Hess's Department Store, Allentown Pa Camera is an Auricon Cine Voice

THE CINE VOICE camera is set up in music room of Count G B Giergini's ville in Florence, Italy RF lamps in clamp on fixtures and Tri X film was used for the interview shots made here

Photography For A TV "Fashion Spectacular"

Hess's Department Stare sent cameraman ta Eurapean style centers to photograph the saurce and the creators of its French and Italian fashian imports.

BY SOL ABRAMS

TO DRAMATIZE the strong influence of European designers in the new fashions it offered for fall, Hess's Department Store, of Allentown, Pennsylvania, recently sent a film crew to Europe to photograph the newest fashion creations offered by French and Italian salons, and to also film their respective creators—the top couturiers of Paris, Rome and Florence.

The resulting film was the highlight of a 30-minute "Fashion Spectacular" sponsored by Hess's and televised September 9th over Philadelphia's WFIL-TV, an ABC affiliate. It brought to local TV audiences a preview of French and Italian high-fashion designer originals brought to this country by Hess's for its fashion-minded clientele.

Earlier, Hess's had conducted a state-wide "Trip-of-a-Lifetime" contest, which was won by Mrs. Sue Evers, of Citronia, Pennsylvania. Mrs. Evers journeyed to the fashion centers of France and Italy in the company of a Hess fashion expert and a staff of the store's fashion buyers. As winner of the Hess contest, Mrs. Evers also played a prominent role in the film that was produced in Europe for the store's "Fashion Spectacular."

Ralph Lopatin, President of Lopatin Productions, of Philadelphia, accompanied the group with a corp of assistants and did the photography. In all, Lopatin shot 2,400 feet of 16mm film—Tri-X for interiors and Plus-X for exteriors—using an Auricon Cine-Voice for sound-on-film takes, and a Bell & Howell 70-DL for the wild or silent footage.

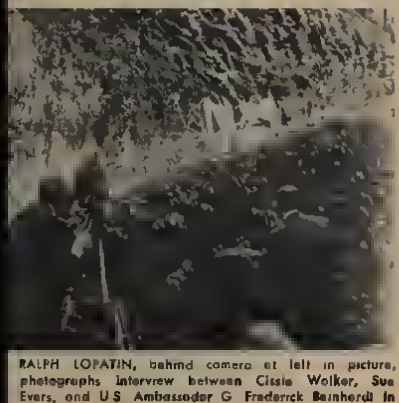
"Our 'no-time-for-sleep' itinerary," Lopatin says, "included the fashion centers as well as local fashion shows in Rome, Florence and Paris. Interviews were arranged and photographed between the Hess representatives and prominent fashion designers, ambassadors, movie stars, and models—

with much of the filming done in and around famous landmarks in the respective cities."

The character of this assignment, Lopatin said, dictated a highly mobile operation and the need to travel "light," using extremely portable camera and lighting equipment. Using Tri-X film for interiors enabled him to rely on simple clamp-on lighting fixtures and RF photolamps, plus a few extension cords. The domestic power source was used for the lights, but for operating the Auricon Cine-Voice camera, a converter was used that transformed

Continued on Page 748

UNIQUE NOTE was series of shots made of sandwich men carrying Hess ad placards through streets of towns and villages of Italy and France. These served as subtle "commercials" for the Allentown, Pa., department store's TV "Fashion Spectacular"



RALPH LOPATIN, behind camera at left in picture, photographs interview between Cissie Walker, Sue Evers, and U.S. Ambassador G. Frederick Reinhardt in garden of Rome Embassy, while assistants handle the sound recording equipment

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Using incident light meter, cameraman (far left) measures intensity of total light from both sky and reflectors that will fall on subject

Some important things to remember when . . .

SHOOTING EXTERIORS

PART 2—Continued from October Issue

EXCEPT FOR NEWSREEL and documentary film photography, exterior scenes usually require some control of the natural daylight or sunlight prevailing in outdoor locations. There are two accessories commonly used for this—the sunlight reflector and the scrim, both of which were shown in actual production use in the photos illustrating Part 1 of this article in the October issue. When shooting in bright sunlight, invariably there is harsh contrast between the light and shaded areas of the scene or subject. Such contrast is generally unflattering in the closeups of persons. To minimize this, some light must be directed into or onto the shaded areas or shadow side of faces. Where power source is not a problem, major studio cameramen employ booster lights for this, whereas earlier they relied entirely on the sunlight reflector which the studios continue to use today in certain situations. The non-theatrical film maker may use reflectors with complete success, provided good judgment is used in their selection and placement. Correctly used, reflectors impart professional finish to exterior cinematography; used carelessly or incorrectly, they may cancel out shadow areas almost completely, creating a flat and undramatic result.

The cameraman's use of reflected light is enhanced where reflectors are provided with surfaces of different materials or materials applied in different patterns. Generally speaking, reflectors are *hard* or *soft*—the former surfaced with bright aluminum foil or silver leaf, the latter with aluminum paint or other semi-matte reflective material. Soft reflectors are generally used for closeups of people; harsh reflectors for throwing strong light at long distances and over a wider area.

Reflectors, which have been used since the early days of silent picture production, are essentially the same in design and function as when first used. The method of using them however, has advanced. Today, they are invariably mounted on standards so that the reflector is somewhat above ground level, thus directing the light from a higher and more natural angle. Sunlight, even when the sun is low comes from overhead, therefore reflected sunlight should fall upon the scene from above rather than from virtual ground level. Today, reflectors are used on the ground only when some special lighting effect is desired.

Reflectors invariably are standard equipment for camera crews shooting exterior chase scenes in westerns and TV action films. Mounted on sturdy tripods aboard the camera car, reflectors maintain uniform lighting on mounted players as they gallop alongside or behind the moving camera car.

Reflectors can prove an important tool for the industrial and in plant cinematographer, also. When carefully used, they balance outdoor lighting to effect high professional results in cinematography. Where photography is to be done at high altitudes with its clear atmosphere and with the sun overhead, faces of people in scenes will be badly underexposed on the shaded side unless there is booster or reflected light used to lighten the shaded area.

Where the cameraman is using reflectors in this manner for the first time, there is often the question as to

Continued on Page 744

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SHOOTING EXTERIORS

Continued from Page 742

how to take an exposure meter reading when reflectors are used In all but a few rare cases, meter readings are taken in the normal manner Light coming from the reflectors and falling on the subject or scene simply contributes to the overall illumination Therefore, whether exposure is being determined by an incident or reflected light mter, the normal method of using the meter should prevail In any case, all reflectors should be in the same position they will be used when the shot is made If, after a reading is taken. and one or more reflectors are moved. another exposure reading should be made

When shooting with color film. it is possible that a reflector having an aluminum or silver foil surface will reflect light upon the subject that is too blue, that is, it will reflect the natural blue color of the sky where the sky is clear and free of clouds or haze The remedy, in such instances, is to cover the reflector with a sheet of amber-colored cellophane. Properly. a reflector having a gold-foil surface should be used in a situation such as described.

When the light coming from reflectors is too harsh—which often happens when bright reflectors are used close to players — the light may be softened by placing cheese cloth or curtain scrim over the reflectors. Such material is an essential accessory to reflector use and should be carried as such at all times with the reflector equipment.

When shooting scenes ol people in action out of doors and at fairly close range, it often happens that the direct sunlight falling on them is too bright, causing them to squint, wince or otherwise affect their natural expressions. In such instances the *scrim* is the accessory that remedies the situation This is usually a large piece of fine dark netting stretched over a framework that may be anywhere from 4 by 4 feet to 8 by 8 feet in size. and mounted on a pedestal or Century stand just out of camera range and in such manner that the scrim comes between the sun and the players. effectively softening the light falling on them A professional version of this accessory, collapsible and portable, is available from Mole-Richardson Company, Hollywood.

The subject of filters properly belongs in this discussion Filters of one kind or another play an important part today in the photography of almost every motion picture There are light-balancing filters and color compensating filters for color photography, and neutral density (ND) filters which are useful in both color and B&W photography

Because most non-theatrical film production today is in color, the filter problem for the cameraman shooting exteriors is negligible. If you're shooting Daylight Kodachrome film or Ektachrome ER daylight film, a Kodak Skylight Filter or the equivalent Wratten No. 1A filter will warm up scenes that are otherwise on the blue white side Use of this filter does not require any change in exposure setting This filter, incidentally, is designed primarily for use in open shade under a clear blue sky to produce a noticeable improvement in color rendering when pictures made without a filter would be too bluish. *(Contd Pg. 746)*

NEUTRAL DENSITY FILTER FACTORS

DENSITY	TRANSMISSION	FACTOR	APP STOPS INCREASE
10	80%	1 3	— ⅓
20	63%	1 6	⅓+
30	50%	2 0	1
40	40%	2 5	1⅓
50	32%	3 1	1⅔
60	25%	4 0	2
70	20%	5 0	2⅓
80	15%	6 7	2⅔+
90	13%	7.7	3
1.00	10%	100	3⅓

When employing neutral density filters as partial filters to hold back only the hot portions of a scene, first read the normal part of the scene and then the part that will be filtered Then choose a density that corresponds to the difference in exposure With the filter in position the entire scene can be recorded with the normal exposure.

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Neutral density filters are commonly used as contrast neutralizers, since they provide the means of reducing light transmission through the lens, allowing the cameraman to work at a larger lens opening to produce a softer, less-contrasty image: or in light so bright the lens cannot be stopped down far enough for the proper exposure. Since ND filters reduce all light equally, they can be used with color film or very high speed B&W films to permit shooting at moderate lens apertures outdoors. ND filters also provide a means for controlling depth of field in exterior scenes, since their use permits working at a larger lens stop with the consequent advantages of differential focusing. Use of a neutral density filter such as the Kodak ND-3 or one of the series of Kodak wratten Neutral Density Filters, No. 96, will allow photography with Eastman Ektachrome ER Film (daylight types) at a larger lens aperture. With a neutral density of 90, for example, the lens can be opened three stops wider than without a filter.

It is important to stress, in concluding this brief article, that outdoors on a clear day, there are actually two sources of illumination: the direct light of the sun and the blue light from the sky. The two, which constitute daylight illumination, are separate and distinct on a clear day but are fused and combined into one source on an overcast day. The color quality of daylight, therefore, is by no means constant. A change in the color of either sunlight or skylight, or a change in the relative amounts of the two sources, changes the combination falling on the scene or subject.[1]

[1] "Color Photography Outdoors," Eastman Kodak Co.

THE LANG TOUCH

Continued from Page 733

lights, because smoke, even in dark areas, tends to pick up sufficient light reflected from other objects in the scene to give it a very definite identity.

Smoke is used again to enhance mood in a Fourth of July celebration sequence taking place in the town square. The smoke, supposedly coming from fireworks exploding overhead, was of the type produced by chemical bombs—thick enough to permit effective back-lighting. This sequence was shot night for night on the Paramount back-lot Western street which had been skillfully revamped to look like a typical small-town square, complete with benches and bandstand.

In the film, the street on which the two main characters live may seem vaguely familiar to those in the audience who remember seeing Judy Garland in "Meet Me In St. Louis" quite a few years ago. The producer of "Summer and Smoke" arranged with M-G-M Studios to shoot on this street of stately homes which were originally built for the Garland film and still stand regally on the studio backlot. The architecture of the houses, much festooned with wooden curlycues and gingerbread, is exactly right for the period and mood of the story. Shooting on this set was complicated by extremely variable weather, a typical exterior problem which continually bedevils cameramen striving to maintain consistency between the direct cuts within a sequence. In color photography, the problem is vastly magnified because the entire rendition of the colors is affected by the type and quality of light. If shooting is done on a day when the sky is very blue, the shadows will tend to go completely black. On the other hand, a hazy sky tends to wash the shadows out completely. Lang took advantage of one of the duller days to film one of the more dramatic scenes scheduled for the street location. It was a scene just preceding the shooting of the doctor's father, and the dullness of the day did much to enhance the air of dread expectation. To further exaggerate the somber effect, the pavement was wetted down and the scene shot through a fog filter. The dull light on the scene worked with the filter to create a suitably cold and dismal mood.

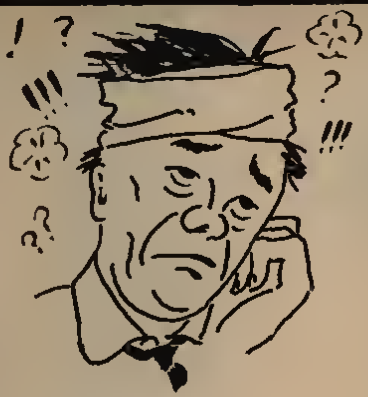
The interior sets designed by Art Director Walter Tyler are extremely atmospheric and contribute a great deal to the mood of the production. Paradoxically however, their very perfection made the photography much more difficult than it would have been had the story been set in plainer backgrounds. The interiors of the houses, cluttered with rococo decor and ornate bric-a-brac, and making lavish use of patterned drapes and furniture coverings, prevented Lang from throwing interesting shadow patterns on the walls, as might have been done effectively in another style of set. The hangings were generally dark and difficult to highlight, as was the furniture. Lang had to constantly modulate his set lighting in order to suggest detail in the dark areas, and at the same time play down "busy" areas in the background that could have proved distracting.

Unlike many pictures made today, which are shot completely or partially on location to utilize authentic backgrounds, 'Summer and Smoke" was shot entirely on sound stage sets, and it was Lang's constant concern to keep them from looking like sets.

"I always try not to let lighting become contrived to the point where a sense of realism is lost," he points out. "Like all cinematographers I have to resist the impulse to add that one extra light that may prove to be too much. You must have taste, not only in lighting, but in the use of effects, too. Otherwise your actors will look like they're on a studio set instead of in the real situation. It's something of a trick to keep your lighting interesting and, at the same time, make the actors look well while actually seeming to be in the place the setting represents." *(Contd on Page 748)*

FOLLOWING a lengthy apprenticeship at old Lasky studios, Charles B. Lang, Jr., shot his first feature film in 1926. Studio was disappointed with results and he returned to working as assistant. Other opportunities followed—none with notable results. Then Lang discovered he'd been imitating other cameramen, decided to follow his own artistic instincts. This was career turning point. He won Academy Award for photography of "A Farewell To Arms" (1933), has been fairly consistent contender ever since. Recent nominations include: "Sudden Fear" (1953), "Sabrina" (1955), "Queen Bee" (1956), "Separate Tables" (1959), and "Some Like It Hot" (1960).

CHARLES LANG, JR.



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He goes on to point out that one of the surest ways to make a set look like a set is to create a light source that is obviously phoney. For example, in a day interior supposedly lighted by windows, heavy backlighting on the players coming from no logical source will tend to call attention to itself as something out of key and will make a set look like just what it is—a set.

Lang feels that in the early part of a sequence it is important, if possible, to show the obvious light source (a window, a lamp, etc.) in order to indicate to the audience where the light is, or should be, coming from. This can be done unobtrusively by panning with action to take in a window or a lamp that is the indicated source. Adjustments must sometimes be made to favor a particular actor or actress who looks best in light coming from the direction that is opposite to the establisbed source. In such cases, it is often possible to restage the action or to bring the actor forward to catch a highlight from a window with the source remaining on the proper side, he explained

The photography of the players in "Summer and Smoke" goes far beyond the accepted professional requirement that the stars must look attractive at all times Miss Page, lovely in a fragile, off-beat way—is not pretty by stereotyped Hollywood standards, but Lang's lighting makes her glow with a luminous beauty that seems to shine from within, reflecting the radiance of her spirituality The lighting on her face is soft and delicately modeled, emanating usually from a three-quarter source and pointing up the expressive emotion in her eyes In sharp contrast Rita Moreno (the Other Woman) is lighted to boldly accentuate her animal sensuality On Laurence Harvey, sharp cross-lighting was used giving his face a chiseled masculine ruggedness.

One of the most dramatic and visually striking sequences in the picture is the cockfight which takes place in the crowded, smokefilled backroom of the local lakeside casino. Here a group of frenzied spectators, seated in circular tiers surrounding the fighting pit, strain and yell as the gamecocks strive to slash each other to bits The carnage takes place in a pool of light, with everything else in the room subdued.

To achieve the effect of a single overhead source of illumination, the scene was lighted with a number of RL 2 photolamps mounted in a large dome Light in the surrounding areas was allowed to fall off sharply to concentrate attention on the central area Smoke pumped onto the set helped create the atmosphere of a close, stuffy room charged with excitement.

Despite the problems of jockeying the camera about in this constricted set and the necessity for moving wild wall units to get desired camera vantage points, Lang achieved some dynamic closeups and dramatically high and low angles which were boldly intercut to suggest the sadistic frenzy of the onlookers. Climaxing this sequence is a low-angle shot in which one fighting cock suddenly flares up and out of the pit, splattering blood on Miss Page—who was an uncomfortable spectator accompanying Harvey to the event. The visual impact of this shot on the audience is strong; it typifies how the potentials of camera lighting, and staging, when skillfully integrated, make the motion picture screen the powerful medium that it is

"Summer and Smoke" was photographed in Eastman Color with Panavision 35mm anamorphic lenses

FASHION SPECTACULAR

Continued from Page 741

6-volt current to 110-volts In Italy, search for a 6-volt motor scooter storage battery set back his production schedule a day and-a-half — the only delay encountered, incidentally.

Most of the anticipated problems related to shooting in foreign lands were obviated by Hess's Department Store in advance of Lopatin's arrival. The company had arranged clearances for him with French and Italian governments and also had set-up personality and location interviews. Thus it became a matter of simply setting up the camera and sound equipment and shooting—weather and sunlight permitting, of course Only once did he run into a snag in this regard. He was setting up for a sound shot at the Coliseum in Rome when local police suddenly appeared and told him he could not set up a tripod-mounted camera without first obtaining police permission. But Hess's had already secured the permit in advance, which Lopatin promptly produced, and he was allowed to proceed

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An interesting innovation which Hess's conceived for the film segment of their Fashion Spectacular was the subtle injection of the store's name into some of the scenes photographed by Lopatin. As a result, signboards extolling the advantages of buying at Hess's in Allentown, Pennsylvania, appeared naturally at intervals throughout the picture on the wall of an ancient ruin, or on a sandwich board carried by a native Italian strolling down a cobble stone street. Hess's art department had made up the necessary props, signs, etc., for this and had shipped them by air.

When shooting interiors, as in the luxurious villa of Count G. B. Giorgini, in Florence, Lopatin had the assistance of the most beautiful electricians anywhere — pretty fashion models who graciously doubled in brass and held the lights while he shot a number of scenes where clamp-on conveniences were unavailable.

Lopatin's cameras recorded Hess's fashion buyers along with their contest-winner guest, Mrs. Evers, in attendance at fashion shows in Pitti Palace, Florentine center of Italian fashions—reportedly the very first time motion pictures of any kind were filmed there. Other highlights were filmed interviews between Hess representative Cissie Walker and Mrs. Evers and U.S. Ambassador G. Frederick Reinhardt. Count Giorgini, actress Susan Strasberg on the grounds of her Rome apartment, and others.

Cameras and lights were also moved into the 2,000-year old opera house at the Baths of Caracalla, Italy, to film a part of the opera Aida. Here Lopatin filmed Mrs. Evers and Hess's fashion envoy on stage before the impressive and colorful background of the opera, including camels, horses and a thousand persons comprising the cast. Shooting could only be done at the close of an act during the applause, instead of during the performance because of the noise from the camera, which would distract both the audience and the players.

The greatest problem encountered by Lopatin when shooting in Paris, was the unprecedented reaction from sidewalk pedestrians whenever he tried to photograph a "sandwich-man" parading a thoroughfare carrying a Hess signboard. After several unsuccessful attempts, Lopatin resorted to the obvious remedy—making "sneak" shots of the "sandwich-man" while concealed in a closed automobile.

While shooting a scene with Mrs. Evers and Hess's fashion envoy near the Eiffel Tower, he missed the chance to get some interesting footage of an Algerian terrorist chase. As he was setting up his camera for the fashion shot, a police car full of gendarmes armed with sub machine guns came screeching into view, following a report of a threatened bombing of the Tower by a terrorist.

Ralph Lopatin, who was a combat cameraman in the European theatre of operations during World War II is no newcomer to either France or Italy. From 1946 to 1957 he was newsreel and documentary film cameraman for WPTZ, Philadelphia (now WRCV TV). During these years he covered such assignments as the Pan American Airlines inaugural flight from Philadelphia to Europe, the Hungary Revolution, the Philadelphia Magazine tour to the World's Fair in Brussels, Psychopharmacological Convention in Rome etc. Since 1957, he has headed his own motion picture production company in Philadelphia, which includes a staff of cameramen, film editors, and animation and title artists and serves the needs of both local and East Coast television sponsors, and business and industrial firms for live and animated motion pictures. ■

WHAT FILM FOR CAMERA?

Continued from Page 728

Quite close in quality will be the 16mm black-and-white print from 16mm Ektachrome through a dupe negative. The apparent lack of grain and the flat color tone translate well into black-and-white, assuming that the proper dupe negative stocks and lab methods are used.

Next we'd list the 16mm print through a dupe negative from black and white 16mm reversal stock. (The higher cost and greater contrast of B&W reversal dupe stock results in practically no quantity release printing by the reversal method.)

Last we'd list the print from 16mm B&W camera negative—and brace ourselves for an argument! But here are our reasons:

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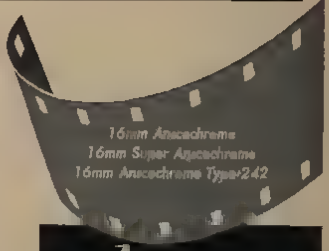

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up better because the grain to picture area ratio is more favorable. This series of steps in 16mm does serve one purpose: provides protection for the camera negative.

What about the print made direct from the 16mm camera negative? Shouldn't it provide the best 16-to-16 black-and-white print, because there are *no* intervening stages?

Theoretically, yes. And actually yes—in one respect. Assuming the 16mm camera negative is properly exposed, professionally processed, and carefully handled, the contact print made from it will be sharp and crisp. But, that's not the whole story.

The advantages of 16mm B&W negative printing are good definition, good grey scale, high speed, and lower cost. The disadvantages include 1) the near-impossibility of handling the film in editing without picking up abrasions, dirt and scratches, which will then show up clearly as white marks on the screen in projecting the print. 2) the print being in the A wind or non-standard emulsion position, with the picture projected emulsion to the light, 3) the possibility of solarization in A&Bing the straight-cuts, and 5) the definite limitation on the number of release prints which can be made before the spliced camera negative shows objectionable evidence of wear, a splice separates, or the valuable negative is otherwise lost for further printing.

16mm camera negative has many excellent uses: filming sports events, recording experiments, time-and-motion study, and certain types of production. It is not to be recommended when considerable editing is required. A&B roll optical effects are wanted, or many release prints are required. For professional production leading to 16mm B&W release, 16mm Ektachrome or 16mm B&W reversal, or 35mm B&W negative is recommended. ■

MAGIC WITHOUT MATTES

Continued from Page 730

licite, French producer of TV commercials and business films. Campbell-Ewald Company, Chevrolet's advertising agency, supervised the production.

The commercial was photographed in France and directed by Bernard Le Moine. LeMoine had a budget of six month's production time—about triple that allotted most auto commercials—in which to turn out the three-minute film. Total production costs, however, were only slightly higher than the cost of a very good on-location commercial shot in the U.S.

Even more startling than the commercial itself, to the industry at least, is its method of production. The film was shot in live action with no in-laboratory optical techniques employed, such as traveling or infrared mattes. Instead, the special visual effects were accomplished during the photography by the use of prisms, mirrors, and mattes in the camera.

Photographed with 35mm Eastman Color negative Type 5250, the commercial opens with a man "driving up" in an invisible car, and coming to a stop alongside a lovely girl. The girl gets into the car and a hotel doorman places her baggage inside the trunk of the invisible car. The scene is obviously Paris.

They drive off, passing cars quickly, rolling smoothly over rough roads, then zoom up a long hill with a view that could only be found in the French countryside.

Among the cars they pass is a French taxi of ancient vintage with an old man at the wheel who stares in amazement at the young couple driving by in the invisible car, apparently sitting on nothing. In a subsequent shot, the taxi drives up behind the couple, now stopped for a passing train at a railroad crossing. Inching forward in wonderment, the taxi driver "bumps" the invisible rear of the invisible car. Later, during a rainstorm,

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the outline of the car is seen with the couple inside warm and dry.

When the car comes over a small hill and encounters a flock of sheep blocking the road the invisible car slows down and inches along through the flock. The sheep move naturally out of the way of the oncoming car, although the car itself still cannot be seen.

Still later, the girl reclines on the invisible front seat and her escort lights her cigarette with a lighter pulled from an invisible dashboard. The film closes with the invisible car coming to a halt, and with the sleek lines of the Chevrolet Impala Sport Sedan materializing.

Throughout the commercial, the car's presence is continually suggested by the position of the passengers seated in the normal positions they would in an actual automobile, gliding along the road but suspended in space; also by the accurate movement of the car itself, and the accompanying natural sound effects.

The incidents in the car's journey, the smoothness of its glide over bumps, the natural zip as it accelerated up the steep hill, the steady braking as the car approaches and passes through the flock of sheep, all dramatically point up the capabilities of the car, even though it is invisible. In this way the commercial focuses attention on exactly what is visually lacking—the car itself.

When the Chevrolet appears in full image at the end of the commercial, its appearance is presented as the obvious conclusion of all the car's performance. The implication is that it was unnecessary to point out that the invisible car is a Chevrolet since only a Chevy could perform as pictured in the preceding scenes.

As to how these startling invisible effects were achieved, Arco Productions is purposely (and understandably) vague, except for details they believe will not affect the secrecy of their basic techniques.

The running-shot sequence, in which the man and woman in the car are seen in profile, was made with the aid of a rather complicated rig which extended a steel beam from the camera car. The couple was seated on the far end of the beam in the same position as if they were seated in a car. Everything was carefully measured beforehand so the couple at all times would be in exactly the same position. At the opposite end of the steel beam, where it was mounted on the camera car, the camera—on a panhead—was securely bolted.

Before the camera lens, a prism, specially designed by Director LeMoine was mounted. This prism served to effectively eliminate the image of the steel beam from the scene being photographed, resulting in the illusion of the couple riding on air—suspended in space. The prism also made it possible to achieve something that traveling matte techniques could not—showing the shadow of the car's passengers on the ground as the car travelled on the highway. To enhance the illusory effects in other sequences, mirrors were used. In others, a special mat was built into the camera.

The use of these various techniques and effects devices were dictated by the camera angles selected, and also by the backgrounds in a given scene.

For the scene showing the invisible car and its passengers slowly inching through a flock of sheep encountered on the road, the car was fitted with a clear plexiglass "snow plow" which extended out ahead of the car and effectively pushed the sheep out of the way of the "car" as it moved. Here again, the undisclosed devices used in conjunction with the camera entirely

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eliminated all vestiges of the "snow plow" image from the scene.

One of the problems that had to be solved early was the effect of the wind on the couple sitting unprotected on the far end of the steel beam. Ultimately the problem was solved by mounting wind breakers ahead of the couple and out of the camera field.

Ironically, this solution to one problem complicated another scene in which the young woman was to be shown with her hair being blown—ostensibly by the air rushing in through an open window—and thus provide the excuse to close an invisible window on the invisible car. Since the wind breakers devised earlier had eliminated the natural wind effect, a small electric fan was introduced into the scene, properly concealed, of course, to provide the air currents that tousle the young lady's hair.

None of these problems proved too difficult to surmount, according to the producers, but were rather welcomed because of the challenges they posed. The final result, they conclude, was a TV film commercial with unusual special visual effects that could not have been duplicated by even the most elaborate traveling matte process. ■

FILMING "WEST SIDE STORY"

Continued from Page 727

indicated. On the other hand, a vehicle in which the characters frequently move from straight drama to intricate song and dance routines can hardly be called realistic as compared to actual life. Such an amalgam of story telling arts is readily accepted by stage audiences, which are conditioned to certain artificialities because of the inherent physical limitations of that medium and the buffer effect of audience-distance. The searching eye of the camera, however, is a vastly more intimate and realistic instrument, so that it is much more difficult to present hybrid stylizations of dramatic form on the screen with any degree of verisimilitude.

The final decision was made by Producer-Director Robert Wise who decided to strike out boldly for a fresh, vitally original use of the cinematic medium.

"Right from the beginning," Fapp relates, "Wise encouraged me to get what he called 'out-of-this world' photography, to experiment with off-beat ways of using the camera to tell the story more effectively—and he backed this up by his willingness to take the time to try for something really special. Working with a director like that is good for a cameraman."

It was also very good for the film. The resultant photographic treatment is an extraordinary blend of gutsy realism and stylization amounting almost to fantasy, but so skillfully are the two *genres* integrated that the mechanics are never obtrusive or out of key with the story. When fantasy prevails, it is motivated by the wishful daydreams of the hostile adolescent gang warriors themselves—living, as they do, in a sordid tenement jungle, but escaping occasionally into a personal imaginary world where grim reality is softened by a kind of indeterminate beauty. The most direct motivation, of course, is the rosy glow which inevitably suffuses the world of young lovers newly discovering each other. It is through their eyes that a grimy high school gymnasium takes on the romantic aura of a celestial ballroom. It is also through their eyes that a tenement fire escape becomes as magic a trysting place as any medieval balcony in Verona may have been.

Following the film's impressive musical overture, which is accompanied on the screen by an imaginative combination of color and abstract design (described along with the picture's special effects and titles elsewhere in this issue), the film begins with a visual prologue in which the helicopter-mounted camera, pointing straight down, glides above Manhattan, moving in closer and closer until it zooms right into a schoolyard in the West Side slums. Completely without dialogue, but using a staccato integration of camera and stark choreography, the elements of conflict — the two rival street gangs — are defined. The Jets appear, stalking possessively along their "turf," flaunting their incipient manhood with tight-jeaned arrogance. Then the Puerto Rican contigent, the Sharks, lunges in rugged leaps down the street, dignified and deadly, shoulders full of chips. The Jets pursue the outnumbered Sharks in cat-and-mouse, vigorous ballet in and out of the tenements and alleys until the intruders flee the hostile turf.

This striking eight minute prologue was actually filmed in Manhattan on a tenement-lined stretch of West 68th St., and in a schoolyard on West 110th

St The tenement huildings along the street had been ordered torn down and their windows had already been removed when the production company made arrangements with the contractor to delay razing the structures until filming was completed. The windows were replaced and dressed with curtains and window boxes to make the buildings look inhahited. A Chapman boom and a hattery of booster lights facilitated shooting of the complicated choreography which ranged over an entire city hlock. Some of the most exciting angles show the dancers silbouetted against the sunlit huildings. In other shots the façades are in deep shadow, forming an almost hlack hackground for the leaping figures hathed in sunhght

In the schoolyard, several cameras (one of which was almost continually mohile) were utilized to follow a complicated interplay between the rival gangs as they vie for a basketball

After thirty days in the New York location, during which shooting was frequently interrupted by rain, the company finished the sequence and returned to Hollywood Filling every stage at the Samuel Goldwyn studios were thirty seven massive sets designed by Boris Leven—some of them with walls weighing many tons and requiring special equipment to move them. It was on these sets that the greatest part of "West Side Story" was filmed.

To capture the claustrophohic feeling of New York tenement structures and also to provide proper backings for numerous low-angle shots, almost all of the sets included full ceilings—a circumstance which precluded the use of overhead lighting units Fapp was constantly challenged, therefore, to find places from which he heam his lights in order to light the action and insure high quality in the photography. The set used in the famous "Cool" number slowed him down to a stop—but only momentarily The locale represented a garage 85 x 150 feet, covered by a solid ceiling only eight feet above the floor, and with three slender pillars to break up the expanse.

In this scene, the Jet gang enters what is established as an almost totally dark garage. During course of the musical routine, their girl friends proceed to turn on the headlights of cars, one-by-one—the lights supposedly providing the sole source of illumination. The 10 kilowatt lamps needed to simulate these single high-intensity headlight sources were too big to conceal behind the passenger cars parked in the garage, so the concept of the set had to be slightly altered to represent a grocery company garage filled with vans big enough to hide the lights. In order to gain sufficient depth of-field to sharply render the full scope of the choreography, it was necessary to stop the wide-angle lens down to f/5 6 and huild the light level up to 800 footcandles Since all the light was coming from the sides, special care was taken to keep those dancers nearest the lights from appearing too "hot" in relation to the rest of the scene

The impressive tenement alley set, used for the fire escape love sequence and frequently revamped to suggest several other locales, posed another lighting problem in that it had to he huilt clear to the top of the sound stage, eliminating the catwalks normally used to mount overhead lamps. The fire escape produced shadows which were interesting, but which had to he carefully controlled in order not to fall across the actors' faces The entire fire escape sequence was filmed with the aid of a Chapman hoom which elevated the camera 35 feet above the sound stage floor

The climactic "rumhle" sequence of the film takes place in a set representing an enclosed areaway heneath a pier of one of New York's large bridges Since there was no logically motivated light source for this setting, Fapp was at liberty to create one At first, he mulled the idea of installing practical lights overhead, hut this would not be authentic to the locale, so he decided in favor of hathing the scene in an overall cold light simulating moonlight The ground was

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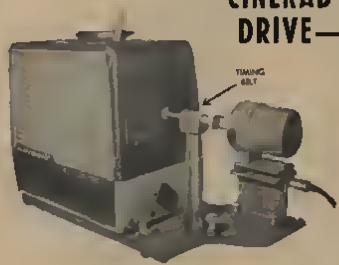

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watered down and the fences sprayed with oil so they would produce highlights and show separation instead of going black.

Because a large area was needed to stage the action, the sequence showing the dispersion of the gangs following the "rumble" was filmed under a trestle in the skidrow area of downtown Los Angeles. The complexity and scope of the sequence required four nights of shooting under a widely deployed battery of arc lights. Its most effective scene shows one of the gang members crossing the street just as a police car arrives. He runs all the way up the street toward the camera, silhouetted against the glare of the car's headlights. The headlights, the only source of illumination in the scene, were built up to a higher than normal level of intensity.

For all the night sequences — those shot on the stage as well as on location — Fapp used a light fog filter over the lens to lend a realistic night feeling to the scenes and at the same time soften colors so they would not appear too harsh.

The use of colored light in "West Side Story" is sparing, but keyed for definite effects. Aside from obvious uses (the glow from a sunset, etc.) it serves to inject important mood overtones into several sequences. For example, in the "Tonight" number, just after Tony has found Maria (and love) at the gymnasium dance, he walks through the streets of Manhattan as if floating on Cloud Nine. Large panels of frosted lucite were erected as part of the set and illuminated from behind by multiple shimmering colored lights of all hues. As Tony moves in front of the panels, he seems to enter another world of sparkling beauty, symbolizing his starry-eyed exuberance.

Colored light is used to advantage in another sequence enacted in a bedroom that is dark except for light shining through the vari-colored glass panels of French doors separating the area from an adjacent lighted room. Having worked out this detail of the set in advance with the Art Director, and having established the multi-colored doors as a logical light and color source, Fapp was able to most effectively use squares of variously colored light as the sole illumination for the bedroom and the players in it.

Another interesting lighting effect appears in the sequence following the "rumble" when police appear on the scene. New York police cars have flashing red lights revolving on top. To simulate the effect of this intermittent red light falling on the players, a whirligig device was constructed on which were mounted two 10 kilowatt lamps with red filters in front of them. The police car was first established approaching at a distance. As it drew nearer, the lights on the whirling device (its rate of movement closely synchronized to that of the police car lamp) were stepped up in intensity to illuminate the scene, enhancing the overall dramatic effect.

Unlike some directors who feel that a wide screen format calls for long master scenes with few cuts and fewer closeups (as exemplified by Otto Preminger's approach to "Porgy and Bess"), Director Robert Wise utilized many striking extreme closeups and a variety of camera angles to afford staccato intercutting in the film's more dramatic sequences. In several sequences, such as the "rumble" and the gymnasium dance, several cameras were set up to provide a selection of flash cuts carefully matched for action.

Panavision-70 Process

"West Side Story" was photographed in the Panavision 70 process, which employs 65mm film for photography and 70mm film for release prints to accommodate the multiple sound tracks of the system. It was the second production ("Exodus" was the first) to employ the newly designed Panavision cameras (both standard and hand-held models) which are distinguished by a 200° shutter and a unique rock-steady movement which stops the film completely before the registration pins enter the sprockets, insuring a picture free from jiggle and blur even on the largest screen.

Panavision personnel worked very closely with Director of Photography Fapp during filming of this picture in order to adapt lenses and cameras to his requirements. For example, Fapp suggested that some of the New York tenement location scenes would be more dramatic if, in the photography, the skyscrapers in the background could be brought up closer and "packed" together so they would seem to loom dominantly in the background above the dancers. To achieve this, Panavision engineers designed and constructed an extreme (450mm) telephoto lens. This lens has a unique and extremely elaborate baffling system which eliminates stray light bouncing between the lens elements, thus doing away with the characteristic flat, hazy "telephoto" effect. Dramatic scenes filmed with this lens have the same high contrast as those shot with standard lenses, permitting smooth intercutting.

Panavision also created for this production the first zoom lens ever designed to cover a 65mm film frame. Called the PanaZoom, the lens ranges in focal length from 95mm to 250mm. Its smooth movement is driven by an electric motor, governed by both a rheostat and a gear shift, thus insuring perfect electrical as well as mechanical control. The PanaZoom was used to advantage in several sequences of the film. In the prologue it provided a smooth and effective fluid camera bridge between the helicopter shots and the scenes photographed on the ground. It was also used dramatically for "shock" closeups—as in the "rumble" sequence when a switchblade suddenly appears in the hands of a supposedly unarmed Shark.

Panavision engineers, one of whom was always present on the set throughout the entire shooting of the picture, provided other equipment innovations including a special type matte box for the camera mounted beneath the helicopter for shooting the prologue scenes. The hand-held Panavision camera was also used with good effect to get intimate flash shots during the fights and choreographic numbers.

Not for a long time has Hollywood produced a picture that depended so much on the photography and the photographer for its impact. In the very beginning of its conception, the whole art of cinematography was carefully investigated, reviewed and analyzed for the contributions it could make directly in enhancing the visual aspects of "West Side Story." Unlike many screen stories, this one was "written for the camera," and in it, the imaginative Daniel Fapp found unbounded opportunity to create and contribute a photographic achievement long to be remembered. ■

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EFFECTS AND TITLES FOR "WEST SIDE STORY"

Continued from Page 738

ing the producer greater flexibility in timing the length and location of the color changes in the overture period to achieve exactly the effect desired—and at less expense.

To effect the color changes by the A&B roll release printing method, dissolves of varied lengths were made from one color film unit to the other. With the excellent lap-dissolve mechanisms available at Technicolor, multiple dissolves were made back and forth and smooth enough to show as gradual color changes on the background of the abstract. In the theatre, this pictorial effect accompanies the overture on the screen with the house lights dimmed about 50% until the moment when the aerial scene of Manhattan Island evolves from the abstract at the finish.

Optical Printer Effects

I believe that "West Side Story" is the first 65mm picture to use the optical printer extensively for visual effects, thus approaching the freedom that we have been accustomed to in the field of 35mm. Robert Wise's extensive knowledge of the potentials of the optical printer and of the results obtained with its intelligent use as a film-making tool, made our work on this phase of "West Side Story" extremely challenging. The relatively new 65mm film medium posed many problems chiefly because of the lack of the facilities that are so readily available for 35mm, a variety of raw film stocks, special processing, and adequate specialized equipment. The limitations presently prevailing with 65mm made it most difficult to accomplish some of the effects desired, and several times it was necessary to make compromises when unforseen problems appeared that were not evident when ideas were put into work.

The only 65mm optical printing effects facilities available at the time production started on "West Side Sotry" were at MGM Studios, where some excellent effects work had been turned out for "Ben-Hur." The Mirisch Company, as an independent production company, accordingly had to rely on the 65mm optical printing equipment which Technicolor then had under construction. In the meantime, effects for "West Side Story" had to be planned and worked out in 35mm in a manner that would permit duplicating them later on the 65mm equipment then being rushed to completion.

We made nearly all the special effects for final approval through the use of anamorphic 35mm "print-down" masters, which are made by direct optical reduction printing from 65mm original negatives. This same procedure was followed in printing the picture dailies for work print use, so screen quality in the effects would then be relatively the same when cut into the work print. When the effects scenes were finally approved by Robert Wise, they were turned over to Technicolor for duplication on their 65mm optical effects printer—now completed. Here Technicolor proceeded according to information supplied from the technical data records of our 35mm effects scenes.

Most "Talked-about" Effect

Among the noteworthy visual effects in "West Side Story" is the scene in which Tony and Maria discover each other on the dance floor. It's a sort of love-at-first-sight thing, and as they stare in wonderment at each other, they gradually become oblivious of the blatant music and the frenzied dancers which surround them. To the audience, all else in the scene becomes diffused and the light is subdued except on Tony and Marie, who stand out clear and sharp and brightly lit. The effect (see Fig. 5) brought forth especial acclaim from many of the nation's motion picture reviewers, some of which are quoted below:

"The scene shimmers with pastel light, then blurs as Tony catches his first glimpse of Maria, and in the entire hall only the two of them are clearly visible."—*Saturday Review*

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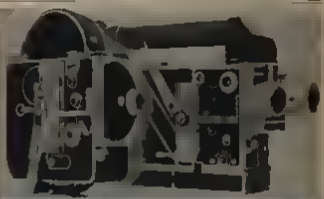

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out and the two lovers individualized while the music gentles down into a kind of dreamy standstill This is exceptional movie work."—*N Y Herald-Tribune*

"Director Robert Wise's color camera, misting out all the other dancers, made this an enchanted moment, indeed"—*Los Angeles Times*

"It then moves to the high school gym, where Tony gets his first glimpse of Maria, blocking out all but these two"—*Boston Record.*

"Innocent first-sight lovers are isolated in golden mist at a teenage dance"—*N Y. Times*

Although this was not a particularly difficult optical effect to produce, it has attracted this unusual attention because it was so applicable to the situation Reverberation of the sound also did a lot to enhance the value of this effect Visually, the "out of this world" effect was accomplished by painting on a small piece of optical glass, which was mounted at the printer aperture, using transparent cement properly applied in areas to align it with the action in each individual cut.

Another effect that has attracted much favorable comment is described in the text printed on the album cover for the Columbia record, "West Side Story":

"Wise advised his laboratory assistants to experiment with color effects; if they worked, they might be used One that worked especially well was a striking dissolve from the dressmaker's shop where Maria begins to twirl happily in anticipation of the dance she will attend that night . . . to the community church dance hall where the dance is in progress. An almost abstract whirl of color and movement establishes the high spirited atmospbere."

The effect described was accomplished by successive printing through three separation filters. At certain points, while the optical printer was making the zoom-in, the separations were dropped out of sync with each other, resulting in attractive color fringes. The zoom then continued on and out of focus, producing a blaze of whirling colors which dissolve on the screen to gyrating red abstract forms that gradually evolve into a red mask film showing a group of dancers, and these gradually materialize to full and properly proportioned conventional figures (Fig 4)

Another effect occurs in the scene in which one of the gangs files past the camera. The scene zooms into a red, blurry mass as abstract lines appear and zoom back, turning into the glistening steel fabric of a chain-link fence superimposed over the setting for the gang fight to follow.

There is another effect in the picture worthy of mention here: During the "Tonight" duet, sung by Maria and Tony, the sordid tenement alley background is transformed into a soft-focus romantic one This was accomplished by superimposure of a beautifying painting generated from the actual background set.

Following the two lovers' first meeting at the gym dance, the set lighting becomes dimmed, and colored, diaphanous star-like forms are seen falling slowly within the scene around the boy and girl—an effect produced by means of several exposures of falling reflective objects, colored and optically distorted in the optical printer, and superimposed over each cut in the sequence

During the mock-wedding sequence, a golden ray of light appears projected into the scene from above and reaching to the kneeling couple This was accomplished by superimposure of a painting of the light ray—diffused, blended in, and properly positioned.

A painting was used again in still another scene for a desired effect: As Tony leaves the dance at the gym, the hallway process background turns into a night street scene as he sings the song "Maria" This involved an eight-foot-wide painting of the upper portion of the street scene which was photographed in a slow camera dolly-back A print of this shot was then projected as a process background, with Tony walking on a treadmill in front of the screen—the treadmill, of course, being out of camera range.

There are other optical effects in the picture that are less perceptible as such, because they are more a modification of existing scenes These include such optical work as superimposure of highlights on a falling knife, dolly-shots, enlargements of areas to alter composition, superimposures of flares over automobile headlights, shock zooms, color patches added to scenes for dramatic effect, diffusion, filtered, dodged and matted areas, blowups from 35mm, camera whip to tie in a painting to a production scene, and other more routine optical printer work

As much of this work was in the realm of pioneering in 65mm, our success with it resulted to a great extent from the patience and cooperation extended us by Mirisch Pictures, Producer-director Robert Wise, Production Manager Al Wood, and

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TITLES AND EFFECTS

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Technicolor. The latter company's 65mm optical printing facilities were put into use for the first time for "West Side Story." As most of our effects were highly creative and extremely involved, the job of printing and integrating these into the picture was not an easy assignment for them, considering the problems inherent in 65mm and in working with new equipment for that medium. Regardless of such problems, however, their results were excellent.

The Credit Titles

Imaginatively conceived and designed by Saul Bass, the credit titles were placed at the end of the picture. The sequence of titles is nearly 500 feet in length and consists of 32 title "cards."

Production of the titles in the studio involved the construction of nine small sets, consisting of old walls, fences, time-scarred doors and windows from razed buildings, and odd traffic signs—all of the type that might be found in New York's west side. Most of the credits were artistically scribbled on these sets (Figs. 6 to 9) which were photographed for the most part in long sustained shots, with the camera dollying across the sets, stopping momentarily to photograph a credit, then moving on to the next—sometimes dollying in or away from the set, or with the camera elevating or lowering enroute.

For this, of course, considerable preplanning, cueing, and rehearsing was necessary before the actual photography was undertaken. Each camera move and stop had to be carefully laid out for the accurate field size, timed for the required reading interval, and the speed of travel from point to point calculated. Because of the variety of moves required, no dolly tracks could be used. Shooting was done with a free dolly, with all moves and stops indicated by marks made on the dolly crane, the floor, and on an upright column for the vertical camera moves (Fig. 9). Location of the various guide marks was determined following a tape play-back of pre-recorded counting. In addition, the large-dial sweep-hand clock, previously mentioned, was synchronized with the camera and used to work out and check results on all timing directly after photography.

In a complicated photographic operation of this kind, the utmost skill and precision on part of the camera operator and also the dolly grip are essential. In this respect, the work of operator John Finger and grip Louis Kusley in photographing the credit titles represents the highest integrity and craftsmanship. Every dolly movement in the complicted, pre-arranged pattern had to be precise to bring the camera exactly in line with each title area; and the camera had to be accurately framed and focused and each title card photographed for the length of time prescribed for it.

Each of the nine sets was photographed as a separate scene, then all dissolved together by Technicolor during the 70mm A & B release printing operation. As it was impossible to critically time the camera moves on the set during photography, it therefore was necessary to do some modification of the footage length on the optical printer in order to give the required reading time to the various title cards. This was done when making the 65mm optical interpositive color master from the original negative. This flexibility, together with the convenience of having each title set as a separate unit, provided the necessary latitude for changes which inevitably are required in the production of important main titles.

Thus, if a name in the credits was subsequently changed, requiring new photography and retracing of the several steps necessary to accomplish it, only one unit or set was involved in the remake, with consequent savings in production costs. As it turned out, there was only one change required in the completed title. It involved the addition of a new credit card, which was then photographed and integrated with the few superimposed titles that are in the sequence.

In my opinion 65mm is a wonderful screen medium, offering as it does such impressive, wide scope and the finest of screen image quality. I have found no really serious problems in the 65mm special effects I have done that are relatively any different than one normally finds in 35mm, with the exception of those caused by the limitation of 65mm facilities mentioned earlier. And I feel it will not be long before this condition is alleviated and that we will see wider use of 65mm, even in lower budget film production. ■

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RALPH WOOLSEY, ASC, LEWIS JENNINGS, JACK MARQUETTE, "Hawaiian Eye"*.

ROBERT HOFFMAN, "Bronco"*.

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ROBERT HOFFMAN, RALPH WOOLSEY, ASC, "Bronco"*.

LEWIS JENNINGS, ROBERT HOFFMAN, "77 Sunset Strip"*.

FRANK CARSON, "Cheyenne"*

JACK MARQUETTE, "Three's a Crowd"* (pilot).

ARTHUR FEINDEL, ASC, Commercials*.

J PEVERELL MARLEY, ASC, Commercials*.

HAROLD STINE, ASC, "Black Gold" with Diane McBain and Claude Akins. Leslie Martinson, director.

BURT GLENNON, "Lawman"*.

CHARLES LAWTON, ASC, "Lovers Must Learn" (shooting in Italy) with Troy Donahue and Suzanne Pleshette. Delmer Daves, producer-director.

RAY FERNSTROM, ASC, "Roaring Twenties"*.

ZIV-UNITED ARTISTS

CLIFFORD POLAND, (shooting in Florida) "Everglades"*

MONROE ASKINS, "Rip Cord"*

CURT FETTERS, "King of Diamonds"*

Literature

BOOKLETS, CATALOGUES AND BROCHURES AVAILABLE FROM EQUIPMENT MANUFACTURERS

Bolex Equipment Catalog

A new two-color illustrated catalog describing Bolex 16mm cameras, projectors and accessories is available from Bolex dealers or directly from Paillard, Inc., 100 Sixth Ave., New York 13, N. Y. It provides details of the H-16 Rex camera, Bolex S-211 and S221 sound projectors, tripod, Unimotor, Rexofader, and underwater camera housing.

A comprehensive chart shows complete line of lenses available for Bolex H-16 cameras, including an anamorphic lens which permits photographing and projecting wide screen pictures.

•

Screen Brightness Standards

"American Standard Screen Luminance for Indoor Theatres, PH22.124-1961" is title of new publication of American Standards Association, which sets forth specifications for luminance of all screens for indoor motion picture theatres. It provides for the measuring of luminance with the projector, either 16mm or 35mm, in operation, but with no film in the gate. Copies are available at 50¢ each from the Association whose address is Dept. P263, 10 East 40th St., New York 16, N. Y.

•

Filter Brochure

"When . . . Why . . . How," informative brochure on filters, issued by Ednalite Optical Co., Peekskill, N. Y., has been revised to include data on filters for use with new Kodachrome II film, both daylight and Type A, in addition to data on filters for use with all color and black-and-white films under various lighting conditions, including scenes illuminated by the Sylvania Sun Gun.

•

Exposure Booklet

"How To Shoot Better Photos On The Water" is title of 16-page illustrated booklet written by Stan Rosenfeld, famous yacht photographer, for Daystrom Inc., makers of Weston exposure meters. Subjects include: "The meter and the human eye"; "What to Expect From a Meter"; Various Metering Methods and When To Use Them"; and "Separating Sea, Sky and Sail." Copies are available at 10¢ each from camera stores and photo dealers.

•

Lighting Equipment Catalog

"Lighting For Motion Picture and Still Photography" is title of 24-page catalog-brochure offered by Natural Lighting Corp., 630 So. Flower St., Burbank, Calif., manufacturers of ColorTran lighting equipment. Booklet gives details and prices on all ColorTran equipment and accessories, and includes an informative chart that describes all the various lamps recommended for use with the equipment. Copies are free.

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*HOW TO SELECT A RECORDER to start your Magnasync-Magnaphonic Sound System

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Sound Equipment Checklist

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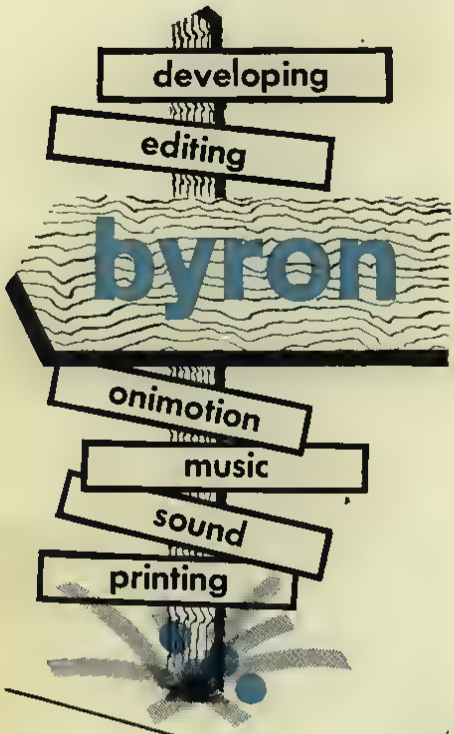

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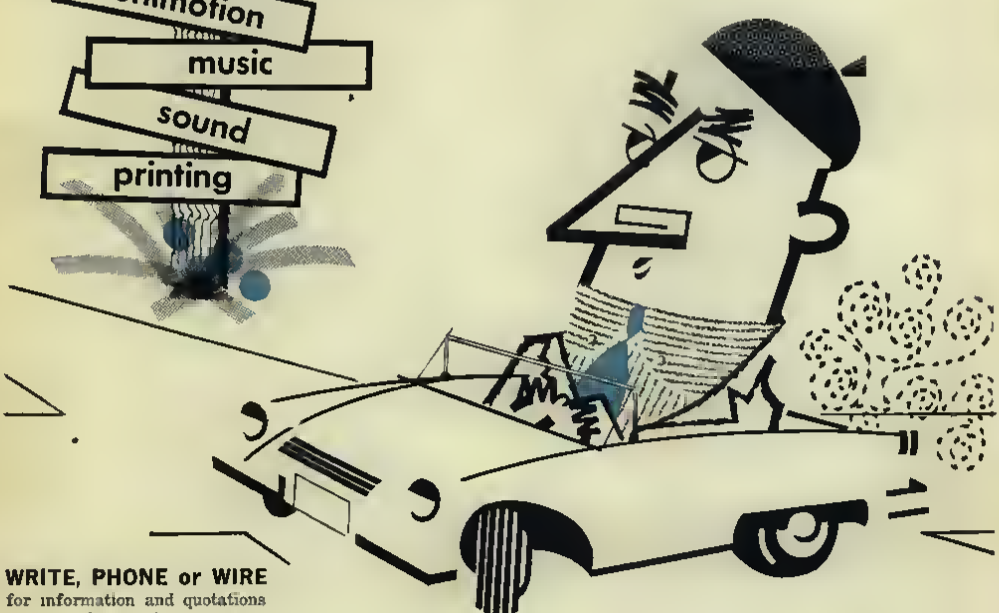

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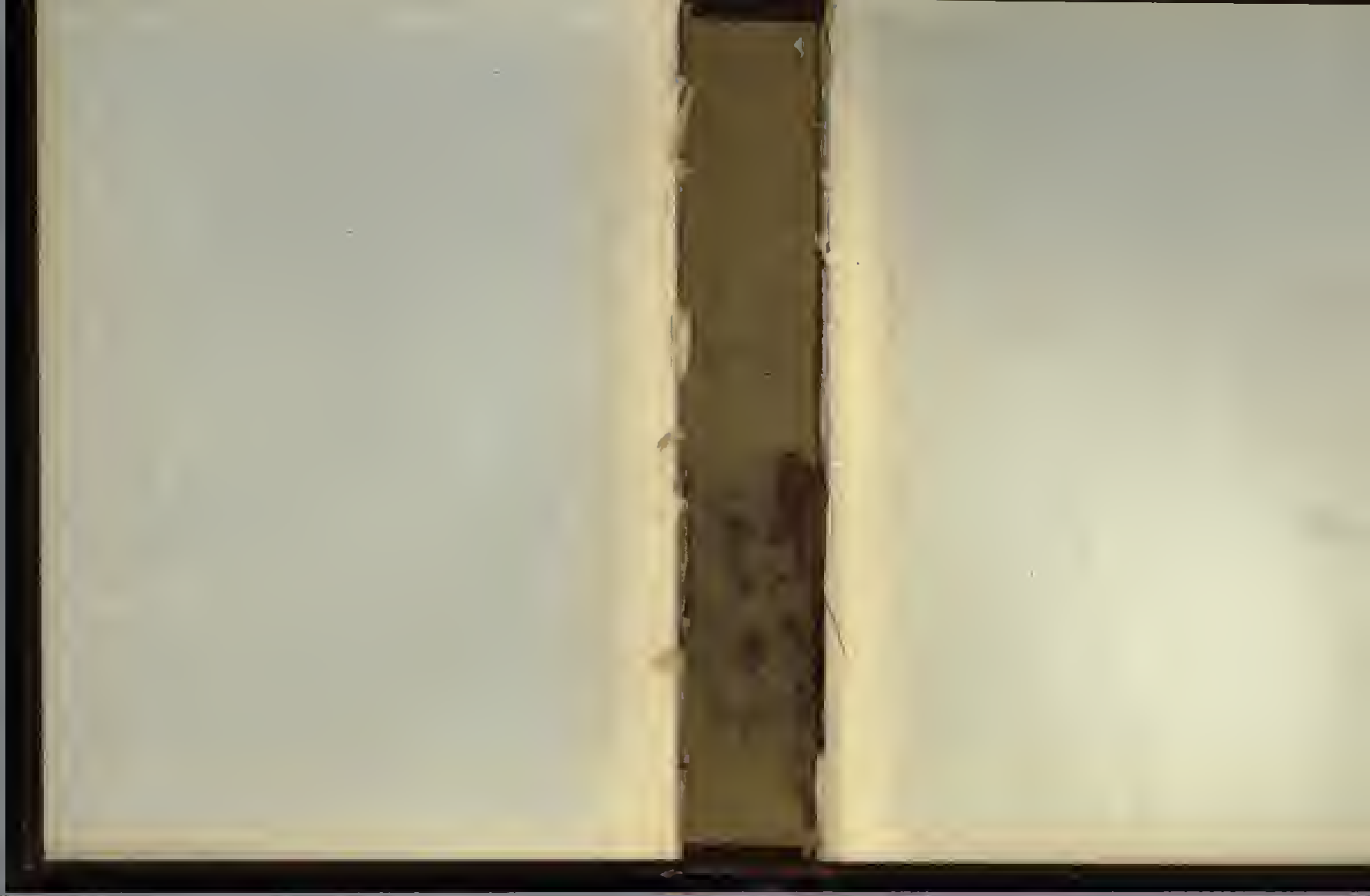
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